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Taxonomic revision of the genus *Andrioplecta* Obraztsov (Lepidoptera : Tortricidae)*

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Abstract A revision and phylogenetic analysis of the Asian genus *Andrioplecta* Obraztsov are presented. Twelve species including 2 unnamed ones are recognized. Five species are described as new and 4 species are here transferred to *Andrioplecta*. The sister group relationships between *Strophedra* and *Andrioplecta*, and the monophyly of *Andrioplecta* are demonstrated. All the species of *Andrioplecta* are described or redescribed in detail, with keys to them; these external features and genitalia of both sexes are illustrated.

Key words Tortricidae, Grapholitini, *Andrioplecta*, phylogeny, Dipterocarpaceae, Leguminosae, galliphagous, entomophagous.

Introduction

The genus *Andrioplecta* was proposed by Obraztsov in 1968 for a single species, *Laspeyresia pulverula* Meyrick. In the course of my revisionary studies of the Asian Grapholitini, I have found that many species, including some undescribed ones, are added to the genus. This genus has been little studied since the original description. Only Razowski (1977) treated *Andrioplecta* and included it in the Eucosmini (his Eucosmina), although it in reality belongs to the Grapholitini. The genus, as well as *Pammene*, shows sexual dimorphism in the venation of the hindwing: in male 7-veined; in female 8-veined. On that ground, members of this genus were often placed in *Pammene* (Meyrick, 1921, 1928, 1935; Obraztsov, 1960; Diakonoff, 1968). The primary aim of this study is to provide a review of the genus including descriptions or redescriptions of the species, and to discuss the phylogenetic relationships among the species.

Abbreviations of the museums and institutions used in the text are as follows: BMNH: The Natural History Museum, London, UK.; FRIM: Forest Research Institute of Malaysia, Kepong, Malaysia; FK: collection of Komai, Osaka University of Arts, Osaka, Japan; KNU: Center for Insect Systematics, Kangweon National University, Chuncheon, Korea; UOP: Entomological Laboratory, University of Osaka Prefecture, Sakai, Japan; ZMC: Zoologisk Museum, Copenhagen, Denmark; ZSM: Zoologische Staatssammlung München, Munich, Germany.

Genus *Andrioplecta* Obraztsov

Andrioplecta Obraztsov, 1968: 176. Type-species: *Laspeyresia pulverula* Meyrick, 1912, by original designation.

Andrioplecta Obraztsov: Razowski, 1977: 213.

Diagnosis. Species of the genus *Andrioplecta* can be recognized by the forewing with an oblique dark fuscous submedian patch (Figs. 16-29), without ocelloid patch (Figs. 16-29),

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and with distally curved CuA₂ (Figs. 1-6), by the hindwing with R₁ arising from about 1/2-2/3 of cell in both sexes (Figs. 1-6), without Rs in male (Figs. 1, 3, 5), and with the hair-pencil near the base of 3A and the dorsal fold in male (absent in *oxystaura* and *suboxystaura* n. sp.) (Figs. 1, 3, 5, 11), by the male with the coremata (sometimes the scale-tufts of this structure lost) (Figs. 7, 8, 12-14), and by the female having the corpus bursae with a large membranous sac (bulla seminalis) originating from its posteroventral wall (Figs. 9, 10).

Wing expanse. 9.5-15 mm.

Head: Fore part (between antennae) clothed with loosely appressed scales; face smooth. Antenna about 2/3 the length of forewing; flagellum composed of about 50-60 segments. Maxillary palpus rudimentary. Labial palpus ascending; second segment roughly scaled beneath; terminal segment short, smooth.

Forewing (Figs. 1-6, 16-29): R₁ from 1/3-1/2 of cell; R₂ nearer to R₃ than to R₁; R₄ to costa; R₅ to termen; M₂ and M₃ almost parallel; CuA₁ from lower angle of cell; CuA₂ from 2/3 of cell, strongly curved distally; CuP present at margin; two parting-veins well developed in cell. Ground color grayish fuscous to fuscous, with a greenish reflections. Markings reduced in some elements of typical pattern of Grapholitini: dorsal blotch very weak or absent and ocelloid patch lost; on submedian area always resting an oblique dark fuscous patch, which reaches to dorsum (Figs. 16-23) or not (Figs. 24-29).

Hindwing (Figs. 1-6, 16-29): Shape sexually dimorphic: in male subtriangular (Figs. 1, 3, 5) or subtrapezoidal (Fig. 20), in female semioval (Figs. 2, 4, 6). R₁ arising from about 1/2-2/3 of cell, joining with Sc distally; Rs lost in male, in female Rs to apex or costa before apex and short-stalked with M₁; M₃ and CuA₁ short-stalked; CuA₂ from 2/3 of cell; CuP evident at margin. Frenulum of female consisting of 2 bristles (Figs. 2, 4, 6).

Male genitalia (Figs. 30-42): Tegumen moderate or broad in width, articulating with anterior edge of vinculum (Fig. 42); gnathos indicated by a weak sclerotized band. Valva constricted at basal 1/3-1/2; cucullus oval or semioval, bristled on inner side, and clothed with a patch of scales on outer side. Aedeagus straight, curved or sinuate, gradually narrowed apically or abruptly narrowed in apical 1/4-1/3; vesica armed with cornuti or unarmed.

Scent organs of male: Hindwing (Figs. 1, 3, 11) with hair-pencil originating from near base of 3A in male; the dorsum being thickened and rolled up, forming a fold, in which the distal part of the hair-pencil is concealed (Figs. 1, 3, 11). In *oxystaura* and *suboxystaura* hair-pencil and dorsal fold absent (Fig. 5). Abdomen (Figs. 7, 8, 12-14) with scale-tufts (coremata) situated between segment VIII and IX. The structure consists of the following three elements (Figs. 7, 12): (1) abdominal sternite VIII transformed into a small crescent sclerite (S8); (2) intersegmental ventral sclerite with a pair of lateral processes between segments VIII and IX (is); (3) a pair of scale-tufts situated on pleural area near proximal ends of lateral processes of ventral sclerite (sc). In *pulverula*, *subpulverula*, *shoreae*, *dierli*, and species B, the scale-tufts are lost (Figs. 8, 13, 14). In the last four species, which compose a monophyletic group within the genus, a pair of scale-tufts (sp) arising from membranous pockets on the tergite VIII (Figs. 8, 14); in *pulverula*, however, the tergite VIII bearing no scale-tufts (Fig. 13).

Female genitalia (Figs. 9, 10, 43-62): Ostium bursae surrounded by a sclerotized ring (forming a sterigma) or without such a ring; ductus bursae narrow and nearly wholly sclerotized (Fig. 9) or rather wide and sclerotized in anterior 3/4 (Fig. 10), the sclerotized region being weakly twisted, forming a longitudinal groove (Figs. 9, 10); corpus bursae oblong-oval, with two horn-shaped signa; a large membranous sac (bulla seminalis) originating from posteroventral wall of corpus bursae (the duct of the sac rather wide and

sometimes weakly sclerotized) (Figs. 9, 10). Sternite VII weakly sclerotized.

Biology

Distribution. *Andrioplecta* is mainly distributed in the tropical and subtropical zones in Asia: Thailand, Malaysia, Borneo, Java, Philippines. Only three species occur in the Palaearctic region: *pulverula* (northern India, Korea, and Japan); *dierli* (northern India and Nepal); sp. A (Japan).

Hosts. Dipterocarpaceae are utilized as larval hosts by 3 related species, *subpulverula*, *shoreae* and *dierli*. These larvae bore in the seed or seedling of *Shorea* and the allied genera. The larvae of *leucodora* are known to have an entomophagous habit; they feed on scale insects (Diakonoff, 1968). The larvae of *pulverula* inhabit galls of gall wasps on *Quercus* and *Castanea* (Fagaceae), feeding on the gall tissue and larvae of the host wasps (Abe, 1990; Abe and Sanari, 1992). The larvae of *rescissa* attack the fruits of *Cynometra cauliflora* (Leguminosae) (Diakonoff, 1968).

Phylogeny

The systematic position of *Andrioplecta*. The genus *Andrioplecta* belongs to the tribe Grapholitini in the Olethreutinae. Within the Grapholitini it is placed in the *Grapholita-Pammene* complex, which consists of the following 10 genera: *Grapholita* Treitschke, *Pammene* Hübner, *Pseudopammene* Komai, *Dierlia* Diakonoff, *Parapammene* Obraztsov, *Pammenodes* V. I. Kuznetsov, *Mimarsinania* Koçak (= *Diamphidia* Obraztsov), *Andrioplecta* Obraztsov, *Strophedra* Herrich-Schäffer, and *Strophedromorpha* Diakonoff; supposed synapomorphies for the complex are the presence of coremata (defined here) and the tegumen articulating with the anterior edge of the vinculum (Fig. 42) (Komai, in preparation). Among these genera *Andrioplecta* may be most closely allied to *Strophedra*, which is indicated by the following specialized traits.

A. Female frenulum consisting of 2 bristles (Figs. 2, 4, 6). In most Grapholitini the frenulum consists of 3 bristles.

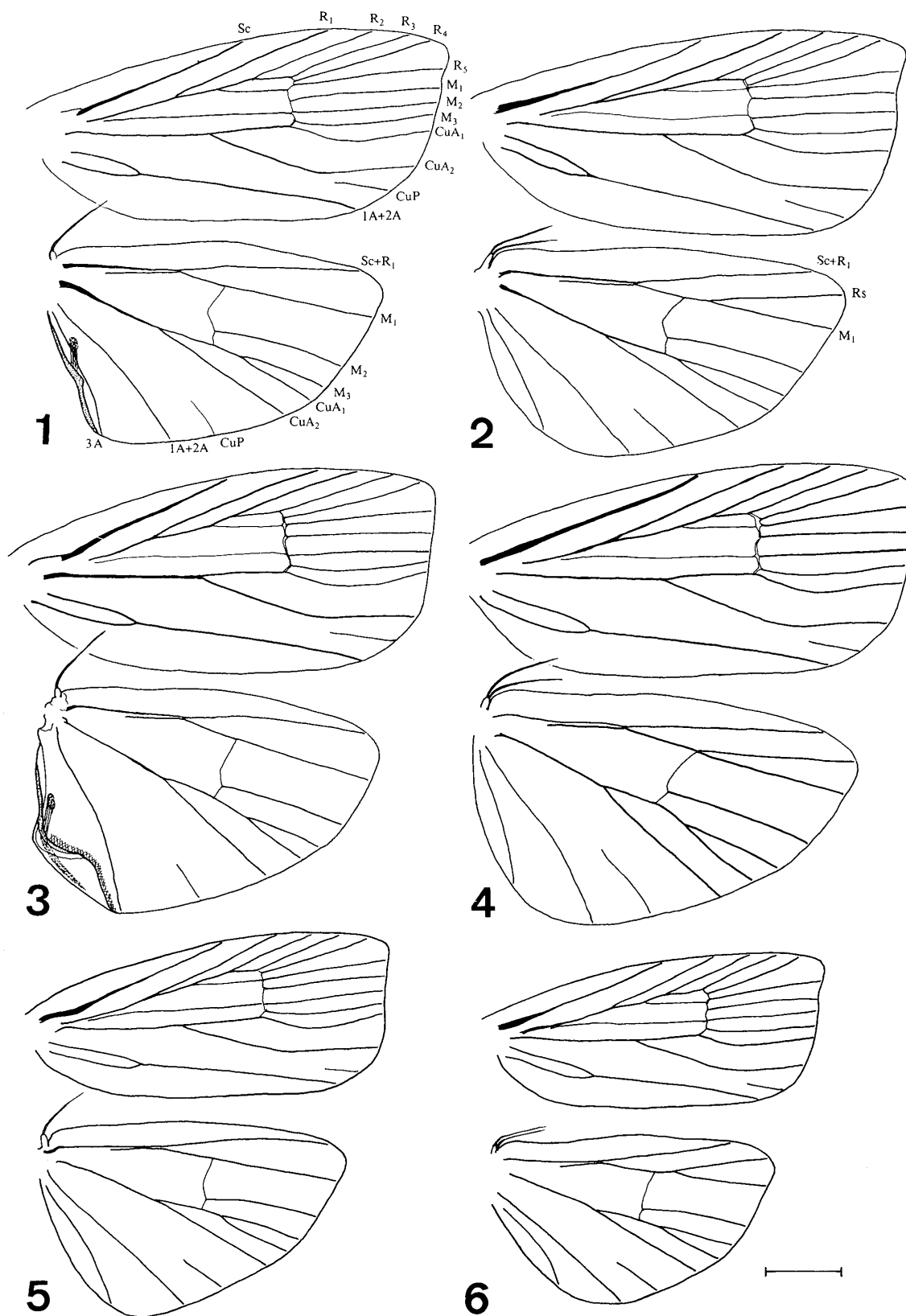
B. Ductus bursae narrow and almost entirely sclerotized with a longitudinal groove (Fig. 9). Most members of both the genera exclusively share this trait (Komai, in preparation).

Phylogeny within *Andrioplecta*. Monophyly of *Andrioplecta* and relationships among 12 species are based on apomorphies shown below and presented in a cladogram (Fig. 15). The numbers given to characters refer to those used in the cladogram. Polarities of most characters have been estimated by comparison with the out-group (*Strophedra* and other allied genera in the *Grapholita-Pammene* complex). The cladogram is at present rather tentative, because 4 species (*phuluangensis*, *moriutii*, sp. A, and sp. B) are known by only one sex.

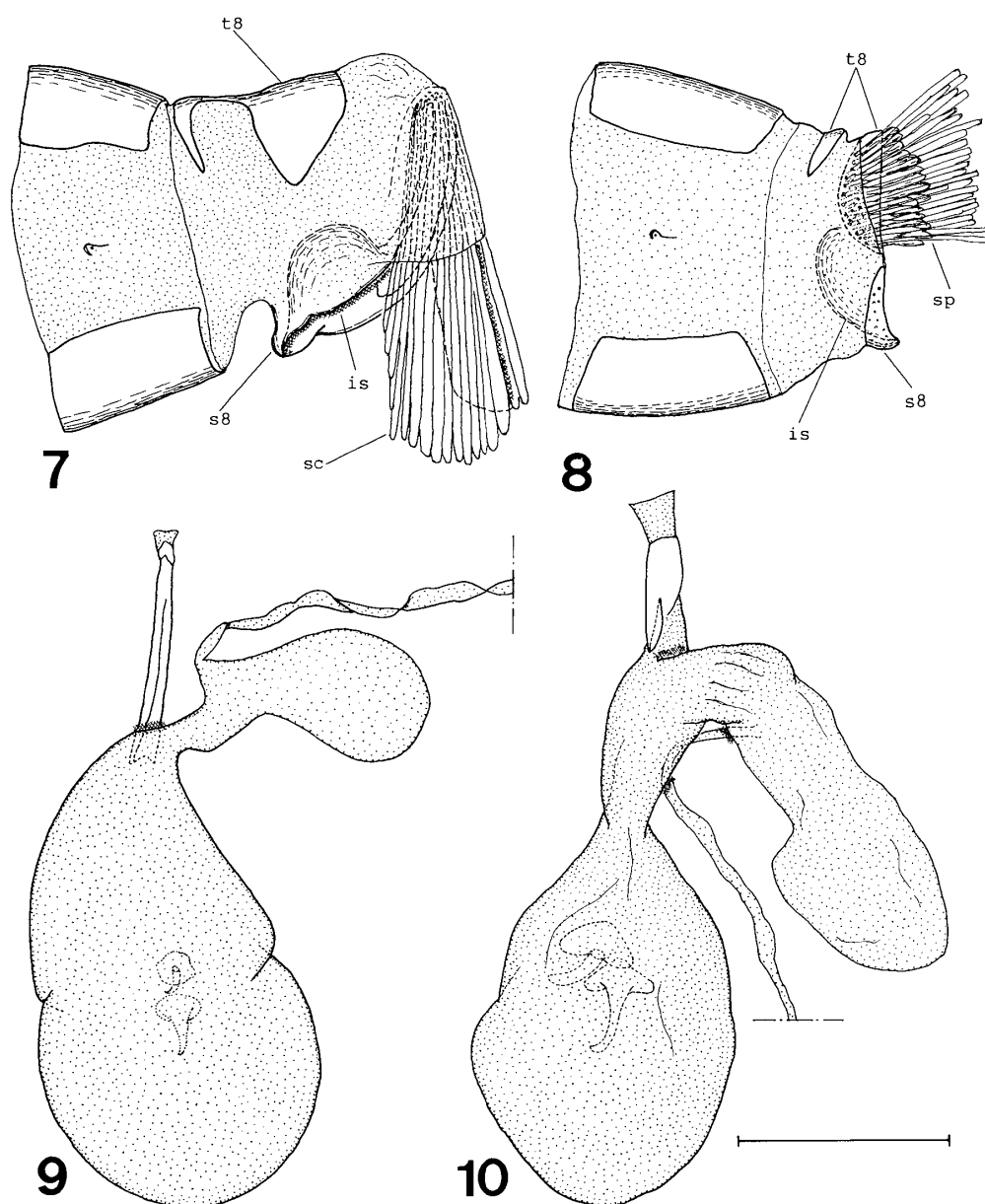
The genus *Andrioplecta* is defined by the following apomorphies (1-4) which are regarded as autapomorphies for the genus.

1. Forewing with an oblique dark fuscous submedian patch. A similar patch is not observed in any other allied genera including *Strophedra*.

2. Male hindwing without Rs. The venation appears in most members of *Strophedra*, but it does not belong to the ground plan of *Strophedra* (Komai, in preparation). Similar types of the venation are also developed possibly as a parallelism in *Mimarsinania* and



Figs. 1-6. Wing venation (scale: 1 mm). 1. *A. pulverula* (Meyrick), ♂, Japan. 2. *Ditto*, ♀, Japan. 3. *A. shoreae* n. sp., ♂, Borneo. 4. *Ditto*, ♀, Borneo. 5. *A. oxystaura* (Meyrick), ♂, Thailand. 6. *Ditto*, ♀, Thailand.



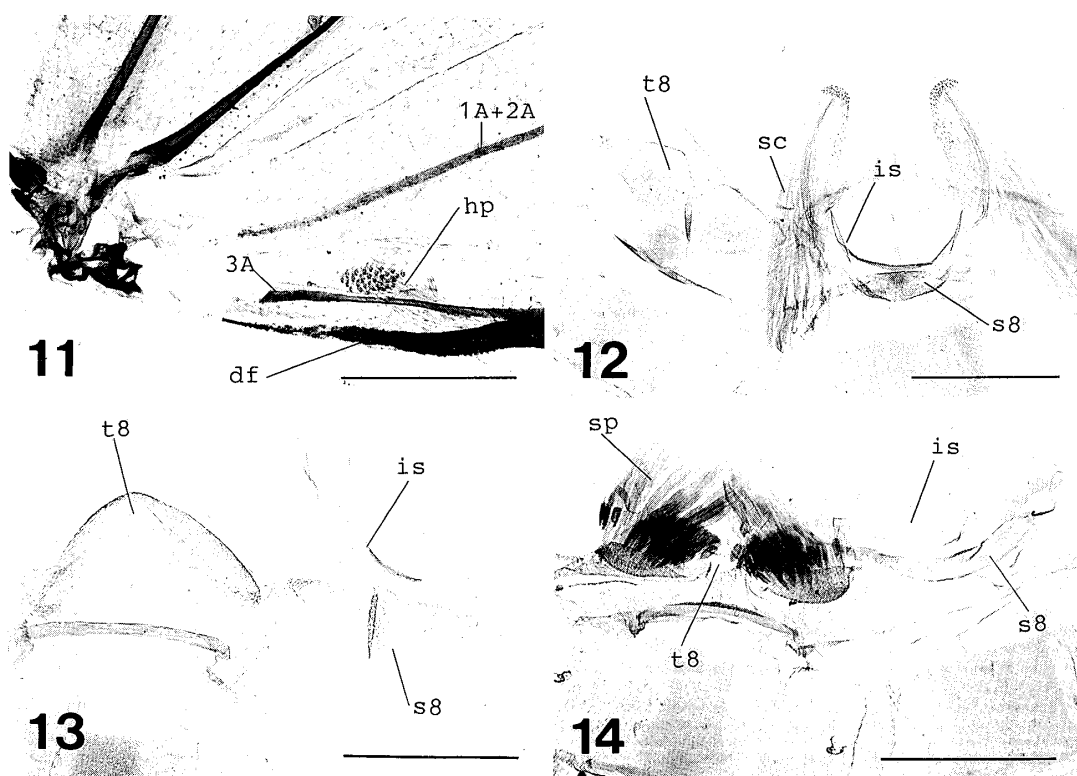
Figs. 7-10. Scent organs in male abdomens (Figs. 7, 8) and bursa copulatrix (Figs. 9, 10) (scale: 0.5 mm). 7. *A. suboxystaura* n. sp., abdominal segments VII and VIII, lateral aspect, Thailand. 8. *A. shoreae* n. sp., abdominal segments VII and VIII, lateral aspect, Borneo. 9. *A. pulverula* (Meyrick), ventral aspect, Japan. 10. *A. shoreae* n. sp., ventral aspect, Borneo. Abbreviations: is, inter-segmental ventral sclerite; sc, scale-tufts of coremata; sp, scale-tufts arising from membranous pockets on eighth tergite; s8 sternite VIII; t8, tergite VIII.

Strophedromorpha.

3. Hindwing with R_1 arising from about $1/2$ - $2/3$ of cell. In the other members of Grapholitini R_1 arises before middle of cell or the cross vein indistinct.

4. Corpus bursae with a large membranous sac (bulla seminalis) originating from its posteroventral wall.

Three species-groups are recognized within the genus. The 1st group (constituted by *oxystaura*, *suboxystaura*, and *phuluangensis*) is defined by the following apomorphy (5). The



Figs. 11-14. Scent organs of males (scales: 0.5 mm). 11. *A. pulverula* (Meyrick), base of hindwing, Japan. 12. *A. suboxystaura* n. sp., coremata (unrolled preparation), Thailand. 13. *A. pulverula* (Meyrick), coremata (Scale-tufts absent) (unrolled preparation), Japan. 14. *A. shoreae* n. sp., coremata (scale-tufts absent) and scale-tufts on eighth tergite (unrolled preparation), Malaysia. Abbreviations: df, dorsal fold; hp, hair-pencil; is, intersegmental sclerite; sc, scale-tufts of coremata; sp, scale-tufts arising from membranous pockets on eighth tergite; s8, sternite VIII; t8, tergite VIII.

group is also characterized by the absence of hair-pencil and of dorsal fold in the hindwing, which is obviously regarded as symplesiomorphy (though the male of *phuluangensis* is unknown).

5. Sterigma indicated by an oval sclerite.

Within the 1st group, *oxystaura* and *suboxystaura* share the following apomorphies (6, 7).

6. Apophysis anterioris strongly curved.

7. Tegumen with a pair of ear-like flaps on each lateral wall.

The 2nd group (constituted by *pulverula*, *moriutii*, *rescissa*, and *leucodora*) and the 3rd group (by *subpulverula*, *shoreae*, sp. A, sp. B, and *dierli*) share the following apomorphy (8).

8. Male hindwing with hair-pencil near base of 3A, the apical part of which is concealed in dorsal fold. A similar structure is not observed in the any other members of the *Grapholita-Pammene* complex.

The 2nd group is defined by the following apomorphies (9, 10).

9. Hindwing with an elongate whitish suffusion along lower margin of cell. In the males of *rescissa* and *leucodora* this suffusion expands into a large white blotch (see character 16).

10. Papilla analis long (longer than or as long as apophysis anterioris).

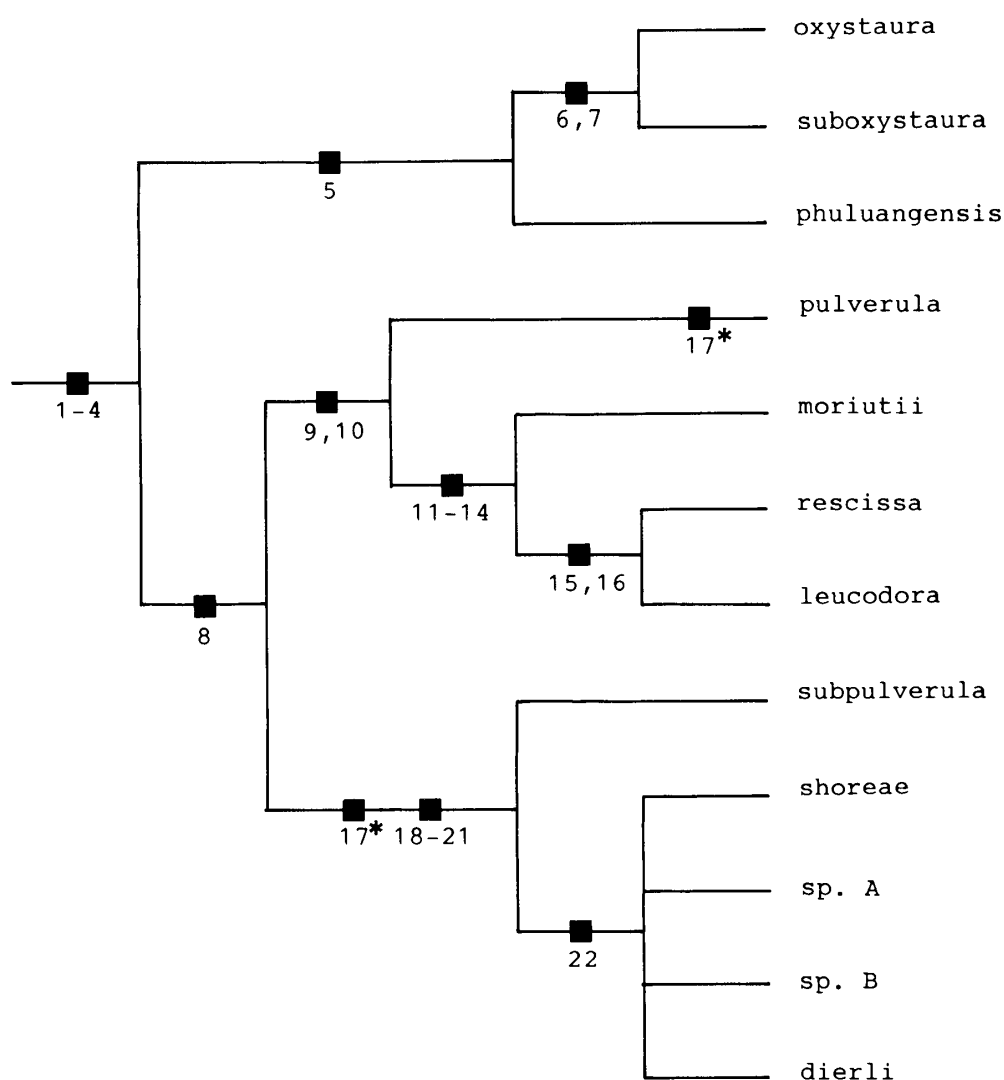


Fig. 15. Cladogram of *Andrioplecta*. Numbers indicate characters discussed in section of phylogeny. Black squares: apomorphies; asterisks: parallelism within *Andrioplecta*.

The members of 2nd group except *pulverula* share the following apomorphies (11-14).

11. Forewing with a dark fuscous pretornal patch.
12. Forewing with a small blackish spot at base.
13. Forewing with whitish cilia.
14. Tegumen wide.

Rescissa and *leucodora* share the following apomorphies (15, 16).

15. Ductus bursae bent at anterior 1/4-1/3.
16. Male hindwing with a large white blotch.

The 3rd group is defined by the following apomorphies (17-21).

17. Coremata lacking scale-tufts. This condition is a deviation from the ground plan of the *Grapholita-Pammene* complex in which the coremata have a pair of scale-tufts. This state is also observed in *pulverula* possibly in parallel.

18. Tergite VIII of male with a pair of scale-tufts arising from membranous pockets. A similar structure is known from *Strophedra* and *Pseudopammene* within the *Grapholita*-

Pammene complex, but those are not homologous, since I have no evidence that the absence in other members of *Andrioplecta* is due to the secondary loss, and consequently this structure does not belong to the ground plan of *Andrioplecta*. The presence of this structure may associate with the loss of the scale-tufts in the coremata (see character 17).

19. Lamella postvaginalis indicated by subrectangular or kidney-shaped patch.

20. Ductus bursae wide and sclerotized in anterior 3/4.

21. Signum with a large triangular base.

Shoreae, sp. A, sp. B, and *dierli* share the following apomorphy (22). No synapomorphies for any two species have been found at present.

22. Aedeagus strongly sinuate.

Checklist of the species of *Andrioplecta*

Andrioplecta Obraztsov

1. *oxystaura* (Meyrick), n. comb. (Thailand and China)
2. *suboxystaura* n. sp. (Thailand)
3. *phuluangensis* n. sp. (Thailand)
4. *pulverula* (Meyrick) (northern India, Korea, and Japan)
5. *moriutii* n. sp. (Thailand)
6. *rescissa* (Meyrick), n. comb. (Java)
7. *leucodora* (Meyrick), n. comb. (Philippines)
8. *subpulverula* (Obraztsov), n. comb. (Java and Malaysia)
9. *shoreae* n. sp. (Thailand, Malaysia, and Borneo)
10. sp. A (Japan)
11. sp. B (Thailand)
12. *dierli* n. sp. (Nepal and northern India)

Key to the species of the genus *Andrioplecta* based on males*

1. Hindwing with neither hair-pencil nor dorsal fold (Fig. 5) ; tegumen with a pair of ear-like flaps on lateral wall (Figs. 30, 31, 42)2
- Hindwing with hair-pencil and dorsal fold (Figs. 1, 3) ; tegumen without such flaps3
2. Cucullus with 1 or 2 strong bristles arising from outer surface (Fig. 30) ; vesica with 3 or 4 cornuti (Fig. 30)*oxystaura* (Meyrick)
- Cucullus without such bristles ; vesica unarmed (Fig. 31)*suboxystaura* n. sp.
3. Forewing with a dark fuscous pretornal patch edged inside by ochreous whitish line (Figs. 19, 20, 22) ; coremata with a pair of scale-tufts (Figs. 7, 12)4
- Forewing without such a patch (Figs. 24-29) ; coremata without scale-tufts (Figs. 8, 13, 14)6
4. Hindwing with a large white blotch occupying lower 1/2-2/3 (Figs. 20, 22)5
- Hindwing without such a blotch (Fig. 19)*moriutii* n. sp.
5. Forewing with submedian and pretornal patches approximate ; hindwing with sinuate termen (Fig. 20)*rescissa* (Meyrick)

* The males of *phuluangensis* and sp. A are unknown ; sp. B is also not included because of imperfect material.

- Forewing with submedian and pretornal patches separate; hindwing with convex termen (Fig. 22) *leucodora* (Meyrick)
- 6. Hindwing with a long whitish suffusion along lower margin of discal cell (Fig. 24); valva with oblong-oval cucullus (Fig. 34) *pulverula* (Meyrick)
- Hindwing without such a suffusion; valva not thus 7
- 7. Forewing almost wholly irrorated sparsely with ochreous whitish (Fig. 25); aedeagus slightly curved (Fig. 35) *subpulverula* (Obraztsov)
- Forewing partly irrorated densely with ochreous whitish to ochreous (Figs. 26-29); aedeagus sinuate, S-shaped in lateral aspect (Figs. 36-41) 8
- 8. Forewing irrorated with ochreous to pale ochreous (Fig. 26); cucullus subtriangular (Fig. 38); aedeagus without any plate on its anterodorsal wall (Fig. 41) ... *dierli* n. sp.
- Forewing irrorated with ochreous whitish (Fig. 27); cucullus oval (Fig. 37); aedeagus with a subovate plate on its anterodorsal wall (Figs. 37, 40) *shoreae* n. sp.

Key to the species of the genus *Andrioplecta* based on females*

- 1. Forewing with a distinct submedian patch touching dorsum (Figs. 16-23) 2
- Forewing with a weak submedian patch not touching dorsum (Figs. 24-29) 5
- 2. Forewing with a dark fuscous pretornal patch edged inside by ochreous whitish (Figs. 21, 23); ductus bursae bent at its anterior 1/4 or 1/3 (Figs. 51, 53) 3
- Forewing without such a patch; ductus bursae straight 4
- 3. Submedian and pretornal patches approximate (Fig. 21); ductus bursae slightly bent at anterior 1/4 (Fig. 51) *rescissa* (Meyrick)
- Submedian and pretornal patches separate (Fig. 23); ductus bursae strongly bent at anterior 1/3 (Fig. 53) *leucodora* (Meyrick)
- 4. Small moth, wing expanse 9-11.5 mm (Figs. 16, 17); apophysis anterioris strongly curved; ductus bursae long (Figs. 43, 45) *oxystaura* (Meyrick); *suboxystaura* n. sp.
- Larger moth, wing expanse 12.5 mm (Fig. 18); apophysis anterioris gently curved; ductus bursae short (Fig. 47) *phuluangensis* n. sp.
- 5. Hindwing with a long whitish suffusion along lower margin of cell (Fig. 24); ductus bursae narrow, almost entirely sclerotized (Figs. 9, 49) *pulverula* (Meyrick)
- Hindwing without such a suffusion; ductus bursae rather wide, sclerotized in its anterior 3/4 (Figs. 10, 55, 57, 59, 61) 6
- 6. Forewing almost wholly irrorated sparsely with ochreous whitish (Fig. 25); ductus bursae with funnel-shaped antrum (Figs. 55, 56) *subpulverula* (Obraztsov)
- Forewing partly irrorated densely with ochreous whitish to ochreous (Figs. 26-28); ductus bursae without defined antrum (Figs. 57-62) 7
- 7. Forewing irrorated with ochreous to pale ochreous (Fig. 26); sternite VII with deep posterior emargination (Figs. 57, 58) *dierli* n. sp.
- Forewing irrorated with ochreous whitish (Figs. 27, 28); sternite VII with shallow posterior emargination (Figs. 59-62) *shoreae* n. sp.; sp. A

* The females of *moriutii* and sp. B are unknown.

Description of the species

1. *Andrioplecta oxystaura* (Meyrick), **n. comb.** (Figs. 5, 6, 16, 30, 43, 44)

Pammene oxystaura Meyrick, 1935 : 62. Lectotype: ♂, China (BMNH), designated by Clarke (1958) [examined].

Pammene oxystaura Meyrick : Clarke, 1955 : 231 ; 1958 : 564, pl. 281, figs. 4-4b ; Obraztsov, 1960 : 121.

Parapammene oxystaura Meyrick : Danilevsky and Kuznetsov, 1968 : 333, fig. 208b.

Diagnosis. Both *A. oxystaura* and *A. suboxystaura* differ from the other species by the smaller size (9-11.5 mm), the forewing with an oblique dark fuscous submedian patch reaching 2/3 across wing (Figs. 16, 17), the male hindwing lacking hair-pencil and dorsal fold (Fig. 5), the male genitalia with a pair of ear-like flaps on each lateral wall of tegumen (Figs. 30, 31, 42 : arrow), and the female genitalia with the long and narrow ductus bursae and strongly curved apophysis anterioris (Figs. 43, 45). The difference between *oxystaura* and *suboxystaura* is found on the male genitalia only : in *oxystaura* cucullus armed with 1 or 2 strong bristles on outer surface, vesica with 3 or 4 cornuti (Fig. 30) ; in *suboxystaura* cucullus lacking such bristles, vesica unarmed (Fig. 31).

Wing expanse : Male, female 9-10 mm.

♂ (Fig. 16). Head grayish fuscous ; face whitish. Antenna black. Labial palpus whitish ; terminal segment irrorated with grayish. Thorax grayish fuscous, with tips of individual scales paler and with strong greenish reflections. Abdomen concolorous with thorax, whitish on underside. Forewing ground color grayish fuscous, with greenish reflections ; costa black, marked with 4 pairs of whitish strigulae beyond middle and with some fine ones before middle, the 1st pair (from apex of wing) large and pronounced ; the 2nd and 4th pairs emitting plumbeous lines which run outwards ; a black straight line running from end of 3rd pair of costal strigula and reaching upper 1/3 of termen, where this line interrupts a whitish line along termen ; a black preterminal spot on vein CuA₁ ; an oblique dark fuscous submedian patch from 1/3 of dorsum, reaching 2/3 across wing ; dorsal blotch very weak, indicated by some almost fading fuscous lines from middle of dorsum ; ocelloid patch not formed, and this area dark fuscous ; cilia grayish fuscous, with a dark fuscous basal line. Hindwing subtriangular (Fig. 5) ; fuscous, paler basally ; termen margined by whitish ; hair-tufts of cubital and anal veins white ; cilia white, with a fuscous basal line.

Male genitalia (Fig. 30) : Valva having semioval cucullus with 1 or 2 strong bristles arising from outer surface. Tegumen with a pair of ear-like flaps on its lateral wall (Fig. 30 : large arrow). Aedeagus straight, abruptly narrowed in apical 1/3 ; vesica with 3 or 4 cornuti (Fig. 30 : small arrow).

Scent organs of male : Hindwing without hair-pencil and dorsal fold (Fig. 5). Coremata with well-developed scale-tufts.

♀. Similar to male, but hindwing semioval (Fig. 6).

Female genitalia (Figs. 43, 44) : Apophysis anterioris strongly curved. Ostium bursae surrounded ovally by a wide sclerotized ring, forming sterigma (Fig. 44) ; ductus bursae long, narrow and almost entirely sclerotized. Corpus bursae large, oval ; signum with a small round base. Sternite VII weakly sclerotized, deeply emarginate in posterior edge.

Material examined. Lectotype : ♂, CHINA : Tien-Mu-Shan, IX. [19]32, (C.), genitalia slide JFGC 7345 (BMNH). CHINA : 1 ♀, Shanghai, IX. [19]32, (C.), (BMNH). THAILAND : Nakhon Nayok Prov. : 1 ♂ 2 ♀, Khao Yai, 18-20. VI. 1983 (Kuroko *et al.*)

(UOP); 1 ♂, Khao Yai Nat. Pk. (900 m), 7. II. 1986 (Allen) (BMNH).

Distribution. Thailand and China. New to Thailand.

Remarks. The females listed above are provisionally identified as *oxystaura* on the basis of rough accordance of collecting period with that of males, since the difference between *oxystaura* and *suboxystaura* appears to be found only on the male genitalia and almost all the specimens of both the species were collected at the same locality in Thailand (Nakhon Nayok Prov.: Khao Yai). Therefore the association of males and females is rather dubious.

2. *Andrioplecta suboxystaura* n. sp. (Figs. 7, 12, 17, 31, 42, 45, 46)

Diagnosis. *A. suboxystaura* closely resembles *oxystaura*. It is impossible to separate one from the other on external features and the female genitalia. The differences on the male genitalia have been noted under the diagnosis of *oxystaura*.

Wing expanse: Male, female 10–11.5 mm.

Male genitalia (Figs. 31, 42): Valva with strongly curved costa; cucullus oblong-oval. Tegumen with a pair of ear-like flaps on lateral wall (Figs. 31, 42: arrow). Aedeagus slightly curved upward, abruptly narrowed in apical 1/3 (Fig. 42); vesica without cornuti.

Scent organs of male: Hindwing without hair-pencil and dorsal fold. Coremata with well-developed scale-tufts (Fig. 7).

Female genitalia: As shown in Figs. 45, 46.

Material examined. Holotype: ♂, THAILAND: Nakhon Nayok Prov.: Khao Yai, 27. VIII. 1981 (Kuroko, Moriuti, Arita & Yoshiyasu), genitalia slide FK 958 (UOP). Other material: THAILAND: Nakhon Nayok Prov.: 3 ♀, Khao Yai, 26. VIII. 1981 (Kuroko *et al.*) (UOP); 1 ♀, Khao Yai, 22. IX. 1987 (Moriuti *et al.*) (UOP); 1 ♀, Khao Yai, 24. IX. 1987 (Moriuti *et al.*) (UOP). Chaiyaphum Prov.: 1 ♀, Chulabhorn, 14. VIII. 1987 (Moriuti *et al.*) (UOP).

Distribution. Thailand.

Remarks. It is impossible to separate *oxystaura* from *suboxystaura* in the female genitalia (see the remarks of *oxystaura*). Therefore, I have refrained from including the females in the type series.

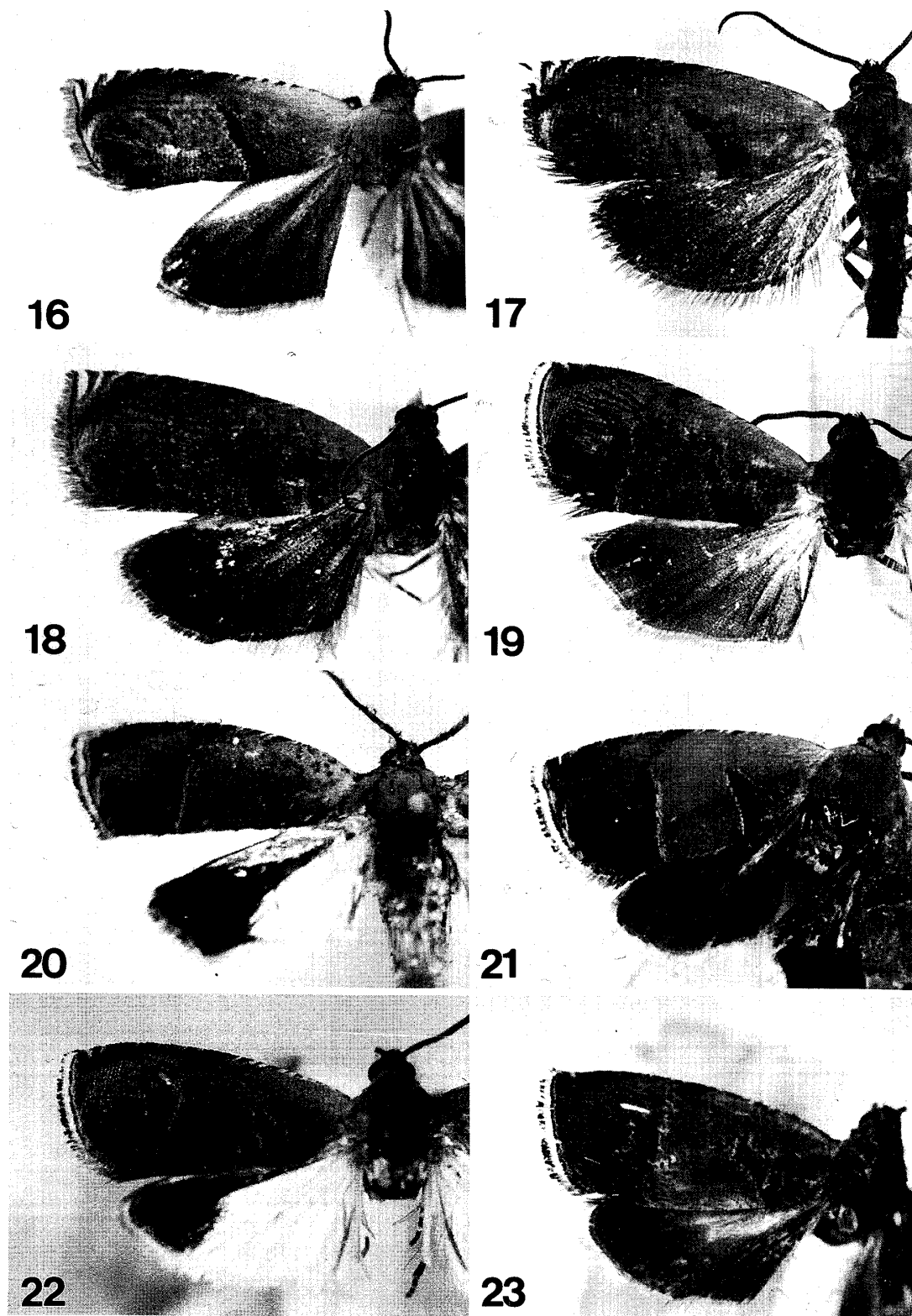
3. *Andrioplecta phuluangensis* n. sp. (Figs. 18, 47, 48)

Diagnosis. *A. phuluangensis*, of which the male is unknown, is very similar to *A. oxystaura* and *A. suboxystaura*, but differs from the latter two by the larger size. The female genitalia resemble those of the two species, but differ from them by the rather short ductus bursae and the posterior edge of the sternite VII deeply emarginate in shape of V (Fig. 47).

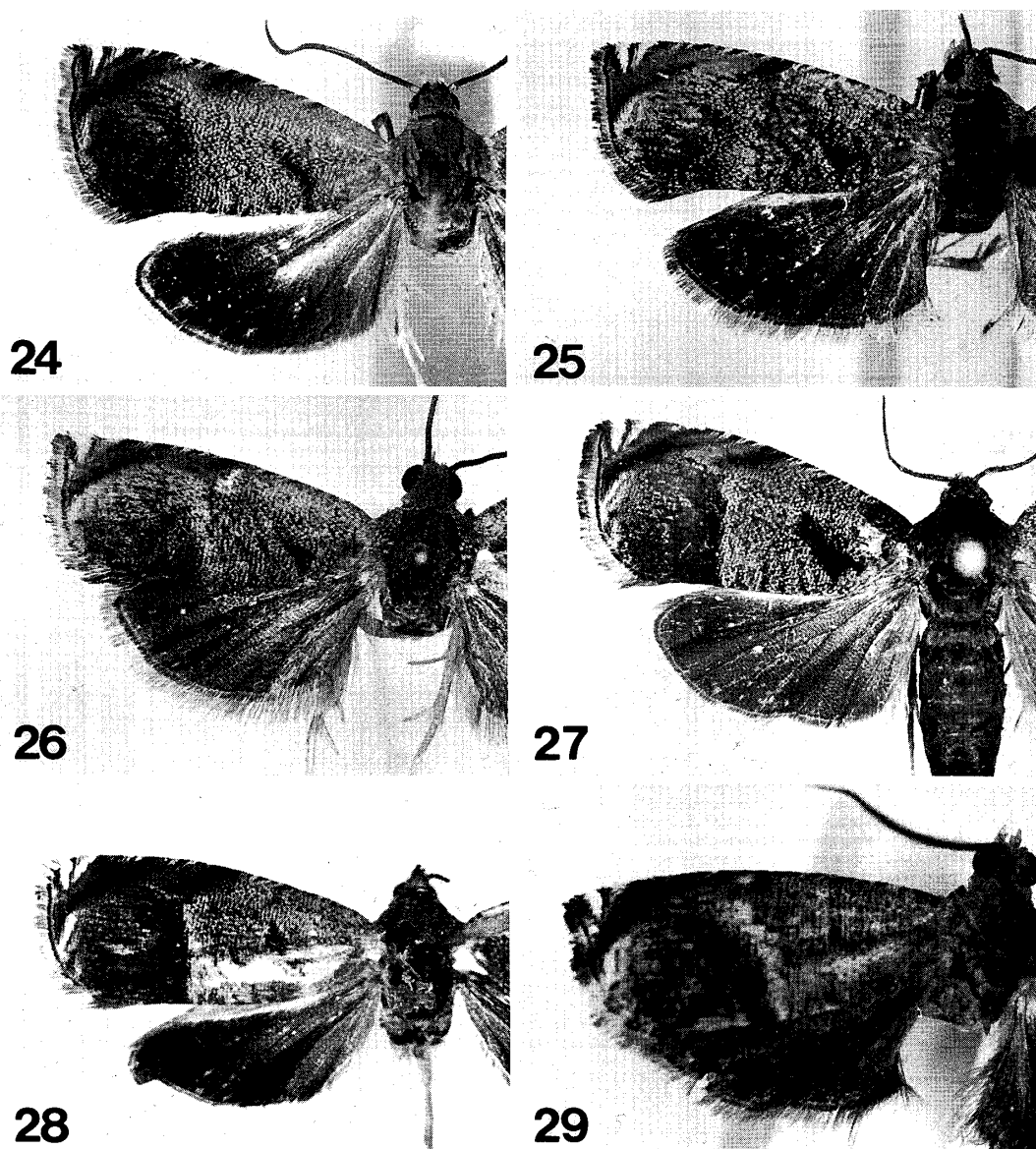
Wing expanse: Female 12.5 mm.

♂. Unknown.

♀ (Fig. 18). Head grayish fuscous; face whitish. Antenna black. Labial palpus whitish. Thorax grayish fuscous, with strong greenish reflections. Abdomen not observed. Forewing ground color grayish fuscous, with greenish reflections; costa dark fuscous beyond middle, with a slightly oblique whitish large apical strigula and 4 pairs of oblique whitish strigulae, and with some fine ones before middle; the 2nd and 4th pairs of costal strigulae (from apex of wing) emitting very faint plumbeous lines which run outwards; a black straight streak running between the plumbeous lines, reaching upper 1/3 of termen; an oblique dark fuscous submedian patch from 1/3 of dorsum, reaching more than half



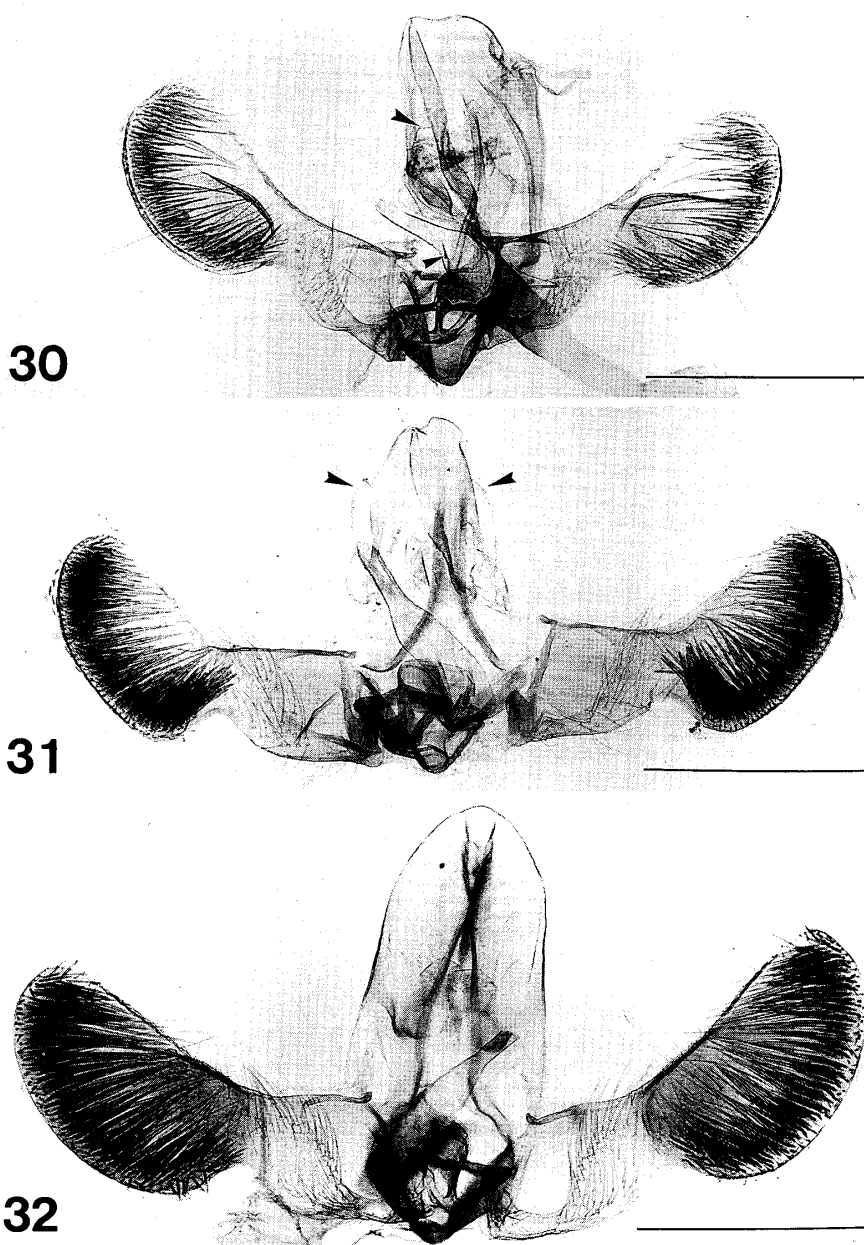
Figs. 16-23. Adults. 16. *A. oxystaura* (Meyrick), ♂, Thailand. 17. *A. suboxystaura* n. sp., ♂, Thailand, holotype. 18. *A. phuluangensis* n. sp., ♀, Thailand, holotype. 19. *A. moriutii* n. sp., ♂, Thailand, holotype. 20. *A. rescissa* (Meyrick), ♂, Java. 21. *Ditto*, ♀, Java. 22. *A. leucodora* (Meyrick), ♂, Philippines, holotype. 23. *Ditto*, ♀, Philippines.



Figs. 24-29. Adults. 24. *A. pulverula* (Meyrick), ♀, Japan. 25. *A. subpulverula* (Obraztsov), ♂, Java. 26. *A. dierli* n. sp., ♂, Nepal, holotype. 27. *A. shoreae* n. sp., ♀, Borneo, paratype. 28. *A.* sp. A, ♀, Japan. 29. *A.* sp. B, ♂, Thailand.

across wing; dorsal blotch very weak, indicated by some almost fading fuscous lines from middle of dorsum; ocelloid patch not formed, this area dark fuscous, suffused with ochreous whitish; a very small submarginal black spot on vein CuA₁; some black dashes above area of ocelloid patch; cilia grayish fuscous, with a dark fuscous basal line. Hindwing semioval; fuscous, paler basally; hair-tufts of cubital and anal veins grayish fuscous; cilia white, with a fuscous basal line.

Female genitalia (Figs. 47, 48): Both apophyses almost equal in length. Ostium bursae surrounded ovally by a narrow incomplete ring, forming sterigma (Fig. 48); ductus bursae rather short, almost entirely sclerotized. Corpus bursae oval; signum with a round base. Sternite VII weakly sclerotized, the posterior edge being deeply emarginate into a



Figs. 30-32. Male genitalia (scales: 0.5 mm). 30. *A. oxystaura* (Meyrick), genitalia slide BMNH 26905, Thailand. Large arrow : ear-like flaps on tegumen ; small arrow : cornuti. 31. *A. suboxystaura* n. sp., holotype. Arrows : ear-like flaps on tegumen. 32. *A. moriutii* n. sp., holotype.

V-shape.

Material examined. Holotype: ♀, THAILAND: Loei Prov.: Phu luang wildlife Sanctuary, 1,400-1,500 m, 10-12. X. 1984 (Karsholt, Lomholdt & Nielsen), genitalia slide FK 942 (ZMC).

Distribution. Thailand.

4. *Andrioplecta pulverula* (Meyrick) (Figs. 1, 2, 9, 11, 13, 24, 34, 49, 50)

Laspeyresia pulverula Meyrick, 1912: 876. Holotype: ♀, India (BMNH) [examined].

Laspeyresia pulverula Meyrick: Meyrick, 1938: 3 (partim); Clarke, 1955: 265; 1958: 452, pl. 225, figs. 2-2c; Obraztsov, 1959: 194; Danilevsky and Kuznetsov, 1968: 607.

Andrioplecta pulverula (Meyrick): Obraztsov, 1968: 177; Abe, 1990: 6 (biology).

Diagnosis. This species may be distinguished from other members by the following combination of characters: forewing with ochreous whitish irroration pronounced on basal 2/3 and weak dark fuscous submedian patch on basal 1/3 (this patch usually not reaching dorsum) (Fig. 24); hindwing with a long whitish suffusion resting along lower margin of discal cell (Fig. 24). The male genitalia are characterized by the oblong-oval cucullus (Fig. 34) and the coremata without scale-tufts (Fig. 13). The female genitalia somewhat resemble those of *rescissa* and *leucodora*, but differ from them by the straight ductus bursae (Fig. 49).

Wing expanse. Male, female 10-13.5 mm.

♂. Head grayish fuscous; face whitish. Antenna black. Labial palpus whitish; terminal segment irrorated with grayish. Thorax grayish fuscous, with strong greenish reflections, the individual scales being paler at tips. Abdomen concolorous with thorax, whitish on underside. Forewing ground color fuscous, with greenish reflections; tips of individual scales ochreous whitish producing an irrorate effect, the irroration being pronounced on basal 2/3; costa black, marked with 4 pairs of whitish strigulae beyond middle and with some fine ones before middle, the 1st pair (from apex of wing) larger; the 2nd and 4th pairs emitting plumbeous lines which run outwards; a black straight line running from end of 3rd pair of costal strigula and reaching upper 1/3 of termen; an oblique rather weak dark fuscous submedian patch situated on basal 1/3, usually not reaching dorsum; dorsal blotch very weak, indicated by some almost fading fuscous lines from middle of dorsum; ocelloid patch not formed, and this area grayish fuscous (obscurely margined outside by a whitish edge), irrorated with ochreous whitish scales; cilia grayish fuscous, with whitish apical and dark fuscous basal lines. Underside with whitish suffusion on discal cell. Hindwing subtriangular (Fig. 1); fuscous, paler basally; termen margined by whitish; a long whitish suffusion along lower margin of discal cell; hair-tufts of cubital and anal veins white; cilia white, with a fuscous basal line.

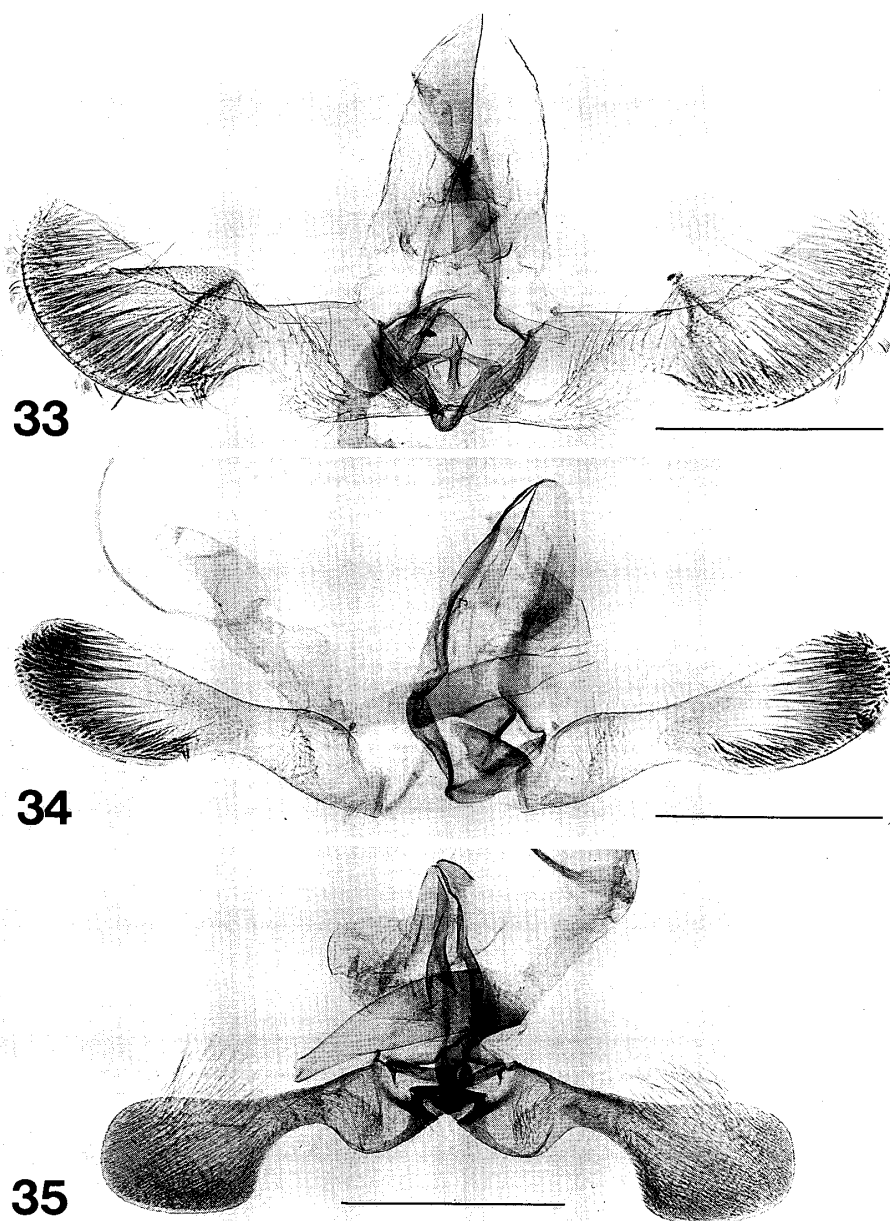
Male genitalia (Fig. 34): Valva slender, shallowly constricted; cucullus oblong-oval. Aedeagus straight, abruptly narrowed in apical 1/4; vesica unarmed.

Scent organs of male: Hindwing with hair-pencil concealed apically in dorsal fold (Figs. 1, 11). Coremata lacking scale-tufts (Fig. 13).

♀ (Fig. 24). Similar to male, but hindwing semioval, without dorsal fold and hair-pencil (Fig. 2).

Female genitalia (Figs. 9, 49, 50): Papilla analis long, as long as apophysis anterioris. Apophysis anterioris and apophysis posterioris almost equal in length. Ostium bursae roundly surrounded by a narrow, sclerotized ring; ductus bursae long and narrow, almost entirely sclerotized (Fig. 9); signum with a round base. Sternite VII weakly sclerotized, shallowly emarginate in posterior edge.

Material examined. Holotype: ♀ (erroneously recorded as a male), INDIA: Assam: Khasi Hills, VI. 1906, genitalia slide JFGC 7371 (BMNH). KOREA: Kyonggido: 1 ♂ (abdomen missing), Suweon, 20. V. 1980 (Park), ex *Quercus* sp.; 1 ♀, Suweon, 28. V. 1980 (Park), ex *Quercus* sp. (KNU). JAPAN: Honshu: Tokyo Pref.: 1 ♂, Ohme, 18. V.



Figs. 33-35. Male genitalia (scales: 0.5 mm). 33. *A. rescissa* (Meyrick), genitalia slide BMNH 26906, Java. 34. *A. pulverula* (Meyrick), genitalia slide FK 678. 35. *A. subpulverula* (Obraztsov), genitalia slide BMNH 26908, Java.

1952 (Hoshino) (FK). Kanagawa Pref.: 3 ♂ 2 ♀, Kamisawai, emgd. 10-15. V. 1989 (Abe), ex gall of *Andricus mukaigawae* on *Quercus serrata* (FK). Yamanashi Pref.: 1 ♂ 1 ♀, Katsunuma, emgd. 20-22. VIII. 1989 (Abe), ex gall of *A. mukaigawae* on *Q. serrata* (FK). Nagano Pref.: 1 ♀, Shiga-Kogen, 17. V. 1961 (Yasuda) (UOP). Osaka Pref.: 1 ♂ 1 ♀, Nose, Kuragaki, emgd. IX. 1979 (Watanabe), ex gall of chestnut gall wasp (FK). Kyushu: Fukuoka Pref.: 1 ♀, Mt. Hikosan, 5. VIII. 1957 (Kuroko) (FK). Ohita Pref.: 1 ♂ 1 ♀, Chojabaru, emgd. IV. 1986 (Abe), ex gall of *A. mukaigawae* on *Q. mongolica* (FK); 2 ♀, Chojabaru, emgd. V. 1986 (Abe), ex gall of *A. mukaigawae* on *Q. dentata*; 4 ♀, Chojabaru, emgd. V. 1987 (Abe), ex gall of *A. mukaigawae* on *Q. dentata* (FK); 1 ♀, Kuju (alt. 1,000 m), emgd. IV. 1982 (Abe), ex gall of *Trichagalma serratae* (FK).

Distribution. Northern India, Korea, and Japan (Honshu, Kyushu). New to Korea.

Hosts. Galls of gall wasps (Cynipidae): galls of chestnut gall wasp (*Dryocosmus kuriphilus*) on *Castanea*, *Andricus mukaigawae* on *Quercus*, and *Trichagalma serratae* on *Quercus*.

Biological note. The larvae live in cynipid galls, feeding on the gall tissue and the larvae of the gall wasps (Abe, 1990; Abe and Sanari, 1992).

5. *Andrioplecta moriutii* n. sp. (Figs. 19, 32)

Diagnosis. The male of *A. moriutii* (the female is unknown) may be separated from those of other members by the following combination of characters: presence of small spot at base of forewing, whitish cilia of forewing, and fuscous hindwing (Fig. 19). The male genitalia are similar to those of *rescissa* (Fig. 33) and *leucodora*, but differ from them by the smoother distal corner of the sacculus.

Wing expanse. Male 11.5 mm.

♂ (Fig. 19). Head grayish fuscous; face whitish. Antenna black. Labial palpus whitish; terminal segment irrorated with grayish. Thorax grayish fuscous, with strong greenish reflections. Abdomen not observed. Forewing ground color grayish fuscous, with greenish reflections, the tips of individual scales being irrorated densely with ochreous whitish on outer half; costal strigulae very weak, barely traceable, except that the distal one is distinct; a blackish line resting below apex; 2 small blackish spots below the line; an oblique blackish submedian patch from 1/3 of dorsum, edged with ochreous whitish scales; pretornal patch oblique inwards, edged inside by ochreous whitish; a small blackish spot at base of wing; ocelloid patch not formed, and this area dark fuscous; cilia whitish, with dark fuscous apical and basal lines. Hindwing subtriangular; fuscous, with an irregular whitish suffusion along lower margin of cell; hair-tufts of cubital and anal veins white; cilia on termen grayish fuscous, on dorsum filiform, whitish.

Male genitalia (Fig. 32): Tegumen broad. Valva with semioval cucullus; sacculus smooth at distal corner. Aedeagus straight, abruptly narrowed in apical 1/3; vesica unarmed.

Scent organs of male: Hindwing with ochreous whitish hair-pencil concealed apically in dorsal fold. Coremata with scale-tufts well developed and longer than valva.

♀. Unknown.

Material examined. Holotype: ♂, THAILAND: Kanchanaburi Prov.: Erawan, 19. VIII. 1981 (Kuroko, Moriuti, Arita & Yoshiyasu), genitalia slide FK 849 (UOP).

Distribution. Thailand.

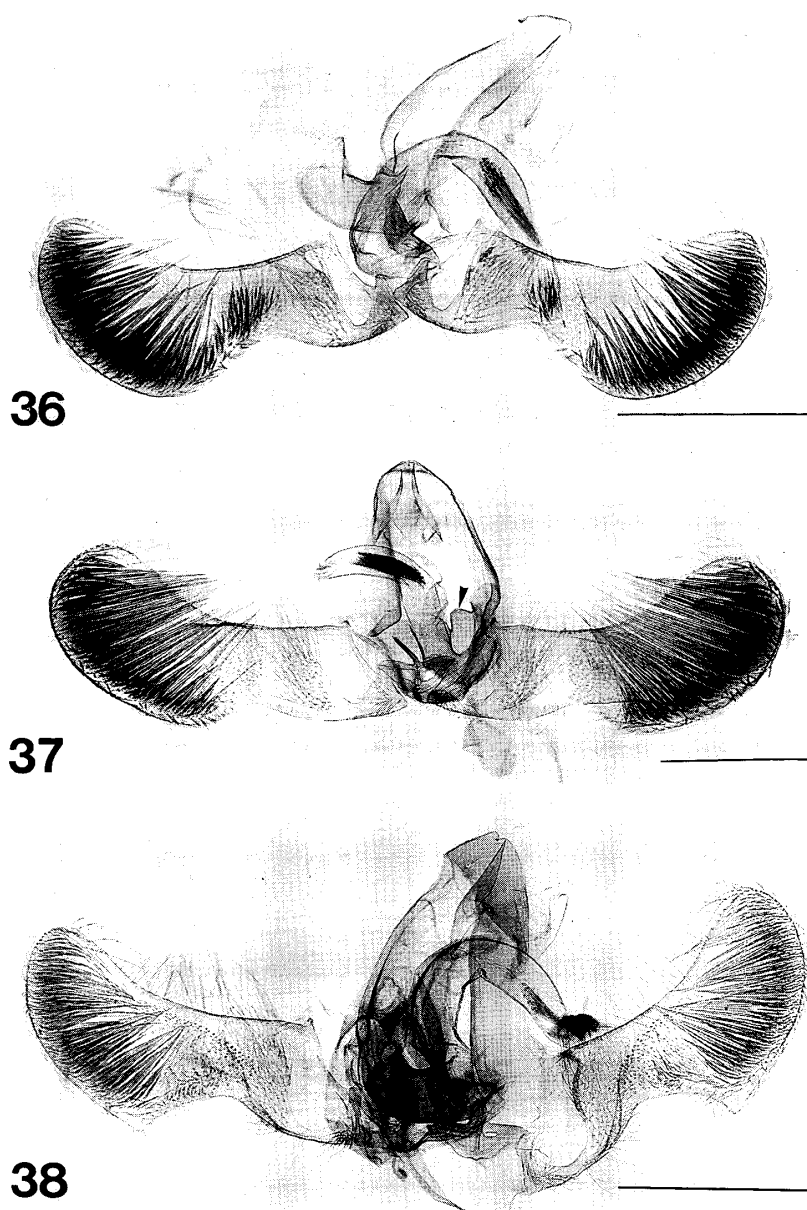
Remarks. This species is named in honor of Dr. Sigeru Moriuti.

6. *Andrioplecta rescissa* (Meyrick), n. comb. (Figs. 20, 21, 33, 51, 52)

Pammene rescissa Meyrick, 1921: 159. Types: ♂ ♀, Java (Rijksmuseum van Natuurlijke Historie, Leiden) [not examined].

Pammene rescissa Meyrick: Clarke, 1955: 270; Diakonoff, 1968: 96.

Diagnosis. Males of *rescissa* and *leucodora* are the only two species having the hindwing with a large white blotch occupying lower half. In male, *rescissa* may be separated from *leucodora* by the forewing with the submedian and pretornal patches more approximate and the hindwing with sinuate termen (in *leucodora* it convex) (Fig. 20). The female differs



Figs. 36-38. Male genitalia (scales: 0.5 mm). 36. *A. sp. B*, genitalia slide BMNH 26904, Thailand. 37. *A. shoreae* n. sp., arrow indicating subovate plate on anterodorsal wall of aedeagus, genitalia slide FK 956, Borneo, paratype. 38. *A. dierli* n. sp., holotype.

from that of *leucodora* by the forewing with the submedian and pretornal patches more approximate and the hindwing with the narrower whitish suffusion in the cell (Fig. 21). The male genitalia are characterized by the valva swollen in outer surface (Fig. 33). The female genitalia differ from those of *leucodora* by the less bent ductus bursae and the ostium bursae surrounded by the incomplete ring (Figs. 51, 52).

Wing expanse: Male, female 14 mm.

♂ (Fig. 20). Head grayish fuscous; face ochreous whitish. Antenna black. Labial palpus ochreous whitish, terminal segment irrorated with grayish. Thorax grayish fuscous, with strong greenish reflections; tips of individual scales paler. Abdomen not

observed. Forewing ground color grayish fuscous, with greenish reflections; costa dark fuscous, marked with some very weak whitish strigulae beyond middle and with some fine ones before middle, the outermost strigula being long and less oblique; a dark fuscous spot on base of wing (it is absent in the specimen shown in Fig. 20); an outwardly oblique triangular dark fuscous submedian patch from 1/3 of dorsum, edged with an ochreous whitish line, reaching more than half across wing; pretornal patch oblique inwards, edged inside by ochreous whitish lines, the outer edge with a prominence below apex and the apex approximating to the 4th costal strigula (from apex of wing); cilia white, with dark fuscous apical and basal lines. Hindwing subtrapezoidal, with sinuate termen; fuscous, with a large white blotch occupying lower half; hair-tufts of cubital and anal veins white; cilia white except along the dark fuscous blotch of wing, where those are grayish fuscous; basal line dark fuscous.

Male genitalia (Fig. 33): Tegumen broad. Valva swollen on outer surface (in Fig. 33 the swell is crushed flat and stuck out over the costa of valva in making slide preparation); cucullus elongate-semioval; sacculus gently curved in distal corner. Aedeagus slightly curved downward, abruptly narrowed in apical 1/3; vesica unarmed.

Scent organs of male: Hindwing with white hair-pencil concealed apically in dorsal fold. Coremata with a pair of well-developed scale-tufts.

♀ (Fig. 21). Similar to male, but hindwing semioval, with convex termen and without dorsal fold and hair-pencil; dark fuscous, with a narrow whitish suffusion in cell; cilia white with fuscous apical and basal lines.

Female genitalia (Figs. 51, 52): Papilla analis long (longer than apophysis anterioris). Both apophyses almost equal in length. Ostium bursae surrounded by an incomplete, weakly sclerotized ring; ductus bursae long and narrow, sclerotized throughout, slightly bent at anterior 1/4. Corpus bursae oval; signum with a round base. Sternite VII weakly sclerotized; posterior edge concave.

Material examined. INDONESIA: Java: 1 ♀, Pekalongan, [19]21 (V[an] D[even-ter]) (BMNH); 1 ♂, Buitenzorg (Roepka), ex *Cynometra cauliflora* (BMNH).

Distribution. Indonesia (Java).

Host-plant. Leguminosae: *Cynometra cauliflora* Linn. (Fruit).

Remarks. I could not study the types of this species, which are deposited in the Leiden Museum, though I examined one female topotype in BMNH.

7. *Andrioplecta leucodora* (Meyrick), **n. comb.** (Figs. 22, 23, 53, 54)

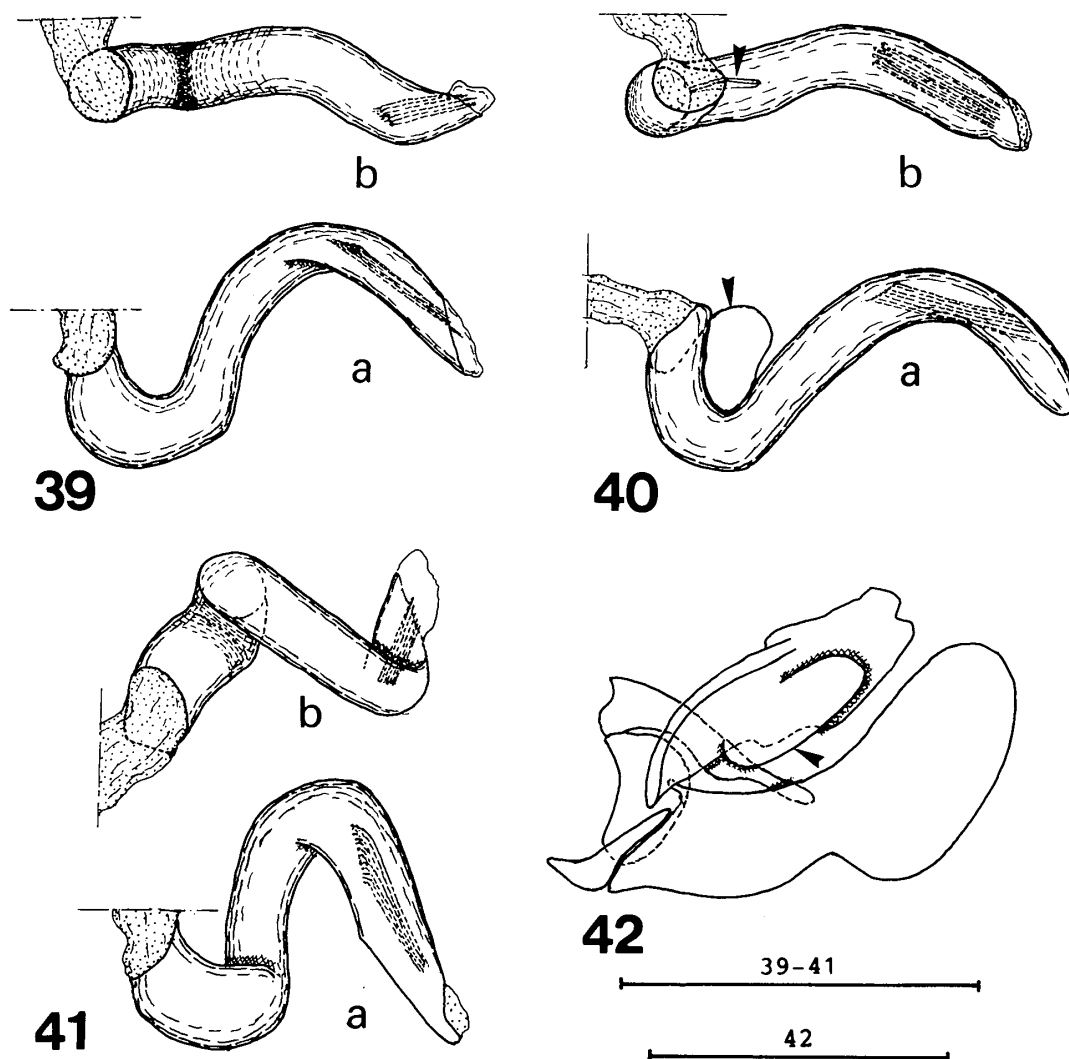
Pammena (sic) *leucodora* Meyrick, 1928: 447. Lectotype: ♂, Philippines (BMNH), designated by Clarke (1958) [examined].

Pammene leucodora Meyrick: Clarke, 1955: 185; 1958: 564, pl. 281, figs. 2-2b; Diakonoff, 1968: 95, figs. 96, 470, 565, 566, 804.

Diagnosis. *A. leucodora* closely resembles the Javanese *A. rescissa*. The differences have been discussed under *rescissa*.

Wing expanse: Male, female 13 mm.

♂ (Fig. 22). Head grayish fuscous; face ochreous whitish. Antenna black. Labial palpus ochreous whitish. Thorax grayish fuscous. Abdomen not observed. Forewing ground color grayish fuscous; costa fuscous, marked with 4 or 5 pairs of whitish strigulae beyond middle and with 5 pairs of fine ones before middle, of these the 1st pair (from apex of wing) being larger; a black straight line running from end of 2nd pair of costal strigula



Figs. 39-42. Aedeagus (Figs. 39-41) and lateral aspect of male genitalia (Fig. 42), a : lateral aspect, b : dorsal aspect (scales: 0.5 mm). 39. *A. sp. B*, Thailand. 40. *A. shoreae* n. sp. Arrows indicating subovate plate on anterodorsal wall, Borneo, paratype. 41. *A. dierli* n. sp., India, paratype. 42. *A. suboxystaura* n. sp., holotype. Arrow : ear-like flap on tegumen.

and reaching upper 1/6 of termen; a dark fuscous spot lying near base; an outwardly oblique dark fuscous submedian patch running from 1/3 of dorsum, edged by whitish, reaching across 1/2 of wing; pretornal patch oblique inwards, reaching across 2/3 of wing and broader apically; 3 small dark fuscous spots along termen; cilia white, with dark fuscous apical and basal lines. Hindwing with convex termen; fuscous, with a large white blotch occupying lower 2/3; cilia white, with fuscous basal and apical lines on area of the fuscous blotch.

Male genitalia: Illustrated by Clarke (1958: 564) and Diakonoff (1968: 331). Tegumen broad. Valva with elongate-semioval cucullus; sacculus gently curved at distal corner. Aedeagus straight, abruptly narrowed in apical 1/3; vesica unarmed.

Scent organs of male: Hindwing with a ochreous whitish hair-pencil concealed

apically in dorsal fold. Coremata with well-developed scale-tufts.

♀ (Fig. 23). Similar to male, but the hindwing without dorsal fold and hair-pencil; fuscous, with an irregular narrow grayish white suffusion in cell; cilia white, with a fuscous basal line.

Female genitalia (Figs. 53, 54): Apophysis anterioris and apophysis posterioris almost equal in length. Papilla analis long. Ostium bursae surrounded roundly by a rather wide, sclerotized ring; ductus bursae long and narrow, entirely sclerotized, bent at anterior 1/3. Corpus bursae oval; signum with a round base. Sternite VII weakly sclerotized, with posterior edge slightly concave.

Material examined. Lectotype: 1 ♂, PHILIPPINES: Luzon: Los Baños, [19]27 (B[aker]), genitalia slide JFGC 7354 (BMNH). PHILIPPINES: 1 ♀, same data as lectotype (BMNH).

Distribution. Philippines (Luzon).

Hosts. Scale insects: *Monophlebus* on *Pithecolobium lobatum* (= *P. scutiferum*) (Leguminosae) and *Peressopneumon convexa* (after Diakonoff, 1968).

8. *Andrioplecta subpulverula* (Obraztsov), **n. comb.** (Figs. 25, 35, 55, 56)

Laspeyresia pulverula Meyrick: Meyrick, 1938: 3 (partim). [Misidentification.]

Laspeyresia subpulverula Obraztsov, 1968: 177, figs. 18, 20. Holotype: ♀, Java (BMNH) [examined].

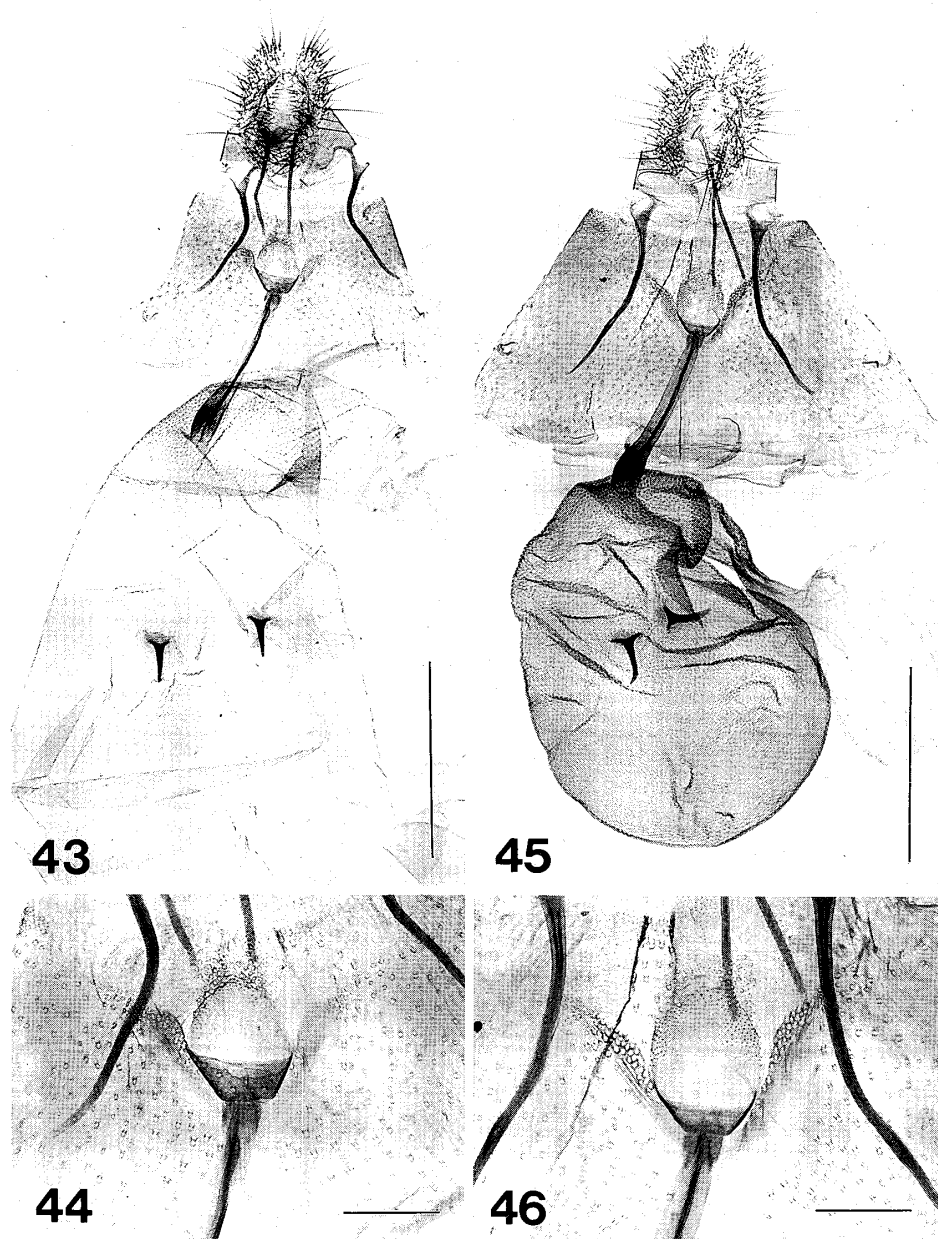
Diagnosis. *A. subpulverula* differs externally from other species by the forewing rather almost wholly irrorated sparsely with ochreous whitish, with the dark fuscous submedian patch very weak (Fig. 25). The male genitalia are quite unique in that the valval cucullus is densely clothed with long, rather weak bristles on inner side (Fig. 35). The female genitalia resemble those of *shoreae*, *dierli*, and sp. A, but may be separated from them by the presence of the funnel-shaped antrum (Figs. 55, 56).

Wing expanse: Male, female 12–14 mm.

♂ (Fig. 25). Head grayish fuscous, sprinkled with scales tipped with ochreous whitish; face whitish. Antenna grayish fuscous. Labial palpus ochreous whitish. Thorax grayish fuscous, the scales being tipped with ochreous. Abdomen not observed. Forewing ground color grayish fuscous, with greenish reflections, irrorated rather sparsely and almost wholly with scales tipped with ochreous whitish; costa grayish fuscous, marked with four pairs of strigulae beyond middle and with some fine ones before middle, the 1st pair (from apex of wing) being larger, and the 2nd and 4th pairs emitting outwardly oblique plumbeous lines; a black straight streak starting below 3rd pair of costal strigulae and reaching middle of termen; a weak dark fuscous submedian patch reaching half way across wing (this patch not touching dorsum); dorsal blotch ill-defined, indicated by 2 or 3 weak, outwardly curved dark fuscous lines; ocelloid patch not formed, though this area with 10 or more short, longitudinal dark fuscous lines, a short ochreous whitish streak along termen and a small blackish dot below this streak; cilia grayish fuscous, with a dark fuscous basal line. Hindwing fuscous; hair-tufts of cubital and anal veins grayish fuscous; cilia grayish fuscous, with a fuscous basal line.

Male genitalia (Fig. 35): Valva deeply constricted; cucullus densely clothed with long, rather weak bristles on inner surface. Aedeagus large, slightly curved, gradually narrowed apically; vesica unarmed.

Scent organs of male: Hindwing with whitish hair-pencil concealed apically in dorsal fold. Coremata without scale-tufts. Tergite VIII with a pair of scale-tufts in shallow



Figs. 43-46. Female genitalia (scales 43 and 45: 0.5 mm; scales 44 and 46: 0.1 mm).
 43. *A. oxystaura* (Meyrick), genitalia slide FK 964, Thailand. 44. *Ditto*, detail
 around ostium bursae. 45. *A. suboxystaura* n. sp., genitalia slide FK 932,
 Thailand. 46. *Ditto*, detail around ostium bursae.

pockets.

♀. Similar to male, but hindwing without dorsal fold and hair-pencil.

Female genitalia (Figs. 55, 56): Both apophyses almost equal in length. Lamella postvaginalis indicated by a subrectangular, weakly sclerotized patch (Fig. 56); antrum funnel-shaped; ductus bursae short and rather wide, sclerotized in its anterior 3/4. Corpus bursae oblong-oval; signum with a large triangular base. Sternite VII subrectangular, with posterior edge deeply emarginate.

Material examined. Holotype: ♀, INDONESIA: Java Lawang, bred. XI. 1932

(K.), genitalia slide BMNH 6672 (BMNH). INDONESIA : 1 ♂, same locality as holotype, bred. X. [19]32 (K.) (BMNH). MALAYSIA : Selangor : 1 ♂, Ulu Gombak F.R., 20. III. 1974, ex *Parashorea densiflora* (fruit) (FRIM), 1 ♀, Ulu Gombak F. R., 29. VIII. 1974, ex *Dipterocarpus grandiflorus* (seed) (FRIM); 1 ♂, FRI, Kepong, 19. IX. 1975 (Khas), ex *Dipterocarpus grandiflorus* (seed) (FRIM).

Distribution. Malaysia and Java. New to Malaysia.

Host plants. Dipterocarpaceae : *Parashorea densiflora* and *Dipterocarpus grandiflorus* (seed).

Remarks. This species was described on the basis of a single female taken at Lawang, Java. I have seen one male in BMNH. This specimen and the holotype bear almost the same data on the label and are nearly identical with each other in the wing markings. Besides them, I have examined two males and one female of this species collected in Malaysia. There is a very slight difference between the Javanese and Malaysian specimens in the shape of the cucullus : in the Javanese specimen the cucullus is subquadrate, but in the Malaysian ones it is oval. At present I treat both the populations to be conspecific.

9. *Andrioplecta shoreae* n. sp. (Figs. 3, 4, 8, 10, 14, 27, 37, 40, 59, 60)

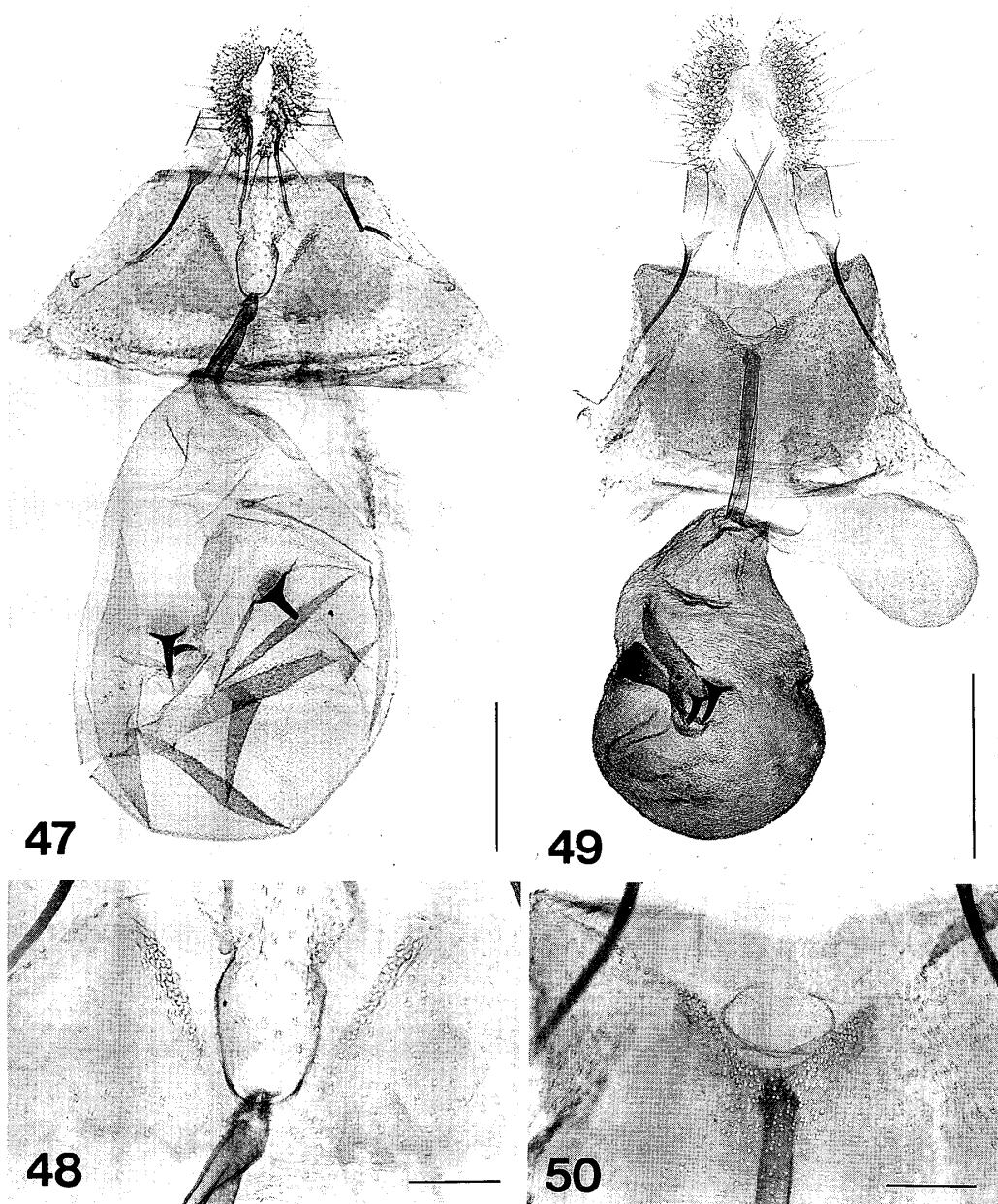
Diagnosis. *A. shoreae* closely resembles sp. A, of which the male is unknown, and it is impossible to separate the two species in external characters and the female genitalia (see the remarks of sp. A). The female genitalia also resemble those of *dierli*, as shown in Figs. 57 and 58, but may be separated from them by the sternite VII with shallower posterior emargination (Figs. 59, 60). The male genitalia are characterized by the presence of a subovate plate on the anterodorsal wall of the aedeagus (as marked with an arrow in Figs. 37 and 40).

Wing expanse. Male 12-13 mm, female 12.5-14 mm.

♂. Head grayish fuscous, with scales tipped with whitish; face ochreous whitish. Antenna black. Labial palpus ochreous whitish; terminal segment irrorated with grayish. Thorax grayish fuscous, with tips of individual scales paler and with strong greenish reflections. Abdomen concolorous with thorax, whitish on underside. Forewing ground color fuscous, with greenish reflections; ochreous whitish irroration lying on basal 3/5, with the outer edge making a right angle with dorsum; costa black, marked with 4 pairs of whitish strigulae beyond middle and with some fine ones before middle, the 1st pair (from apex of wing) large and pronounced; the 2nd and 4th pairs emitting outwardly oblique plumbeous lines; a black straight streak running between the plumbeous lines, bending and reaching 1/2 of termen; an inwardly oblique dark fuscous submedian patch running towards dorsum (this patch usually not reaching dorsum); ocelloid patch absent, this area grayish fuscous (obscurely edged outside by a whitish line), with some longitudinal blackish lines; cilia grayish fuscous, with a whitish apical line and with a dark fuscous basal line. Hindwing subtriangular; fuscous, paler basally; hair-tufts of cubital and anal veins grayish fuscous, the latter tuft being very long; cilia white, with a fuscous basal line.

Male genitalia (Figs. 37, 40): Valva with oval cucullus. Aedeagus sinuate in shape of the letter S in lateral view (Fig. 40a), with a subovate plate on its anterodorsal wall (as marked with arrow in Figs. 37 and 40); vesica armed with a group of spiniform cornuti.

Scent organs of male (Figs. 3, 8, 14): Hindwing with dorsal fold and further rolled up in tornal area; distal part of hair-pencil concealed in the roll (Fig. 3); on dorsum cilia very long, filiform or spatulate apically. Coremata without scale-tufts (Figs. 8, 14). Tergite



Figs. 47-50. Female genitalia (scales 47 and 49: 0.5 mm; scales 48 and 50: 0.1 mm).

47. *A. phuluangensis* n. sp., holotype. 48. *Ditto*, detail around ostium bursae.
 49. *A. pulverula* (Meyrick), genitalia slide FK 677, Japan. 50. *Ditto*, detail around ostium bursae.

VIII with a pair of scale-tufts in shallow pocket on its posterior edge (Figs. 8, 14).

♀ (Figs. 4, 27). Similar to male, but hindwing semioval, without dorsal fold and hair-pencil.

Female genitalia (Figs. 10, 59, 60): Papilla analis rather small. Apophysis anterioris longer than apophysis posterioris. Lamella postvaginalis indicated by a kidney-shaped plate. Ductus bursae rather short, sclerotized in its anterior 3/4; antrum not defined; corpus bursae bottle-shaped; signum with a subtriangular base. Sternite VII weakly sclerotized, emarginate in posterior margin.

Material examined. Holotype: ♂, BORNEO: Sabah: Sandakan, emgd. 8. XII. 1981 (Nagai), ex *Shorea macrophylla*, genitalia slide FK 868 (UOP). Paratypes: BORNEO: Sabah: 6 ♂ 9 ♀, same data as holotype (UOP); 3 ♂ 5 ♀, same data as holotype except for emgd. 27. XI. 1981 (Lantoh) (UOP); 1 ♀, same data as holotype except for 15. XII. 1981 (Nagai) (UOP). MALAYSIA: Kedah: 1 ♂, Wleng Nursery, 20. VIII. 1974, ex *S. densiflora* (seedling) (FRIM). Pahang: 1 ♂, Ulu Teranum F. R., Raub, 24. III. 1976 (Khas), ex *S. parvifolia* (seed) (FRIM); 1 ♀, Ulu Teranum, 24. III. 1976 (Khas), ex *S. parvifolia* (seed) (FRIM); 1 ♂ 1 ♀, Ulu Teranum, 2. IX. 1976 (Lyman), ex *S. platyclados* (seed) (FRIM). Selangor: 1 ♂, FRI, Kepong, 19. IX. 1975 (Khas), ex *Dipterocarpus baudii* (fruit) (FRIM); 1 ♀, Ulu Gombak, 2. IX. 1970, ex *S. curtisii* (BMNH). Negeri Sembilan: 1 ♀, Kenaboi F. R., 17. IX. 1970, ex Meranti bukit [= *S. platyclados*] (BMNH). THAILAND: Loei Prov.: 1 ♀, Phu Rua, c. 800 m, 15–19. VIII. 1987 (Moriuti *et al.*) (UOP).

Distribution. Thailand, Malaysia, and Borneo.

Host plants. Dipterocarpaceae: *Dipterocarpus baudii*, *Shorea curtisii*, *S. densiflora*, *S. macrophylla*, *S. parvifolia*, and *S. platyclados* (seeds and seedlings).

10. *Andrioplecta* sp. A (Figs. 28, 61, 62)

Wing expanse. Female 14 mm.

♂. Unknown.

♀. As shown in Fig. 28.

Female genitalia: As shown in Figs. 61 and 62.

Material examined. JAPAN: Kyushu: Fukuoka Pref.: 1 ♀, Mt. Sefuri, 13. IX. 1980 (Fukuda) (FK).

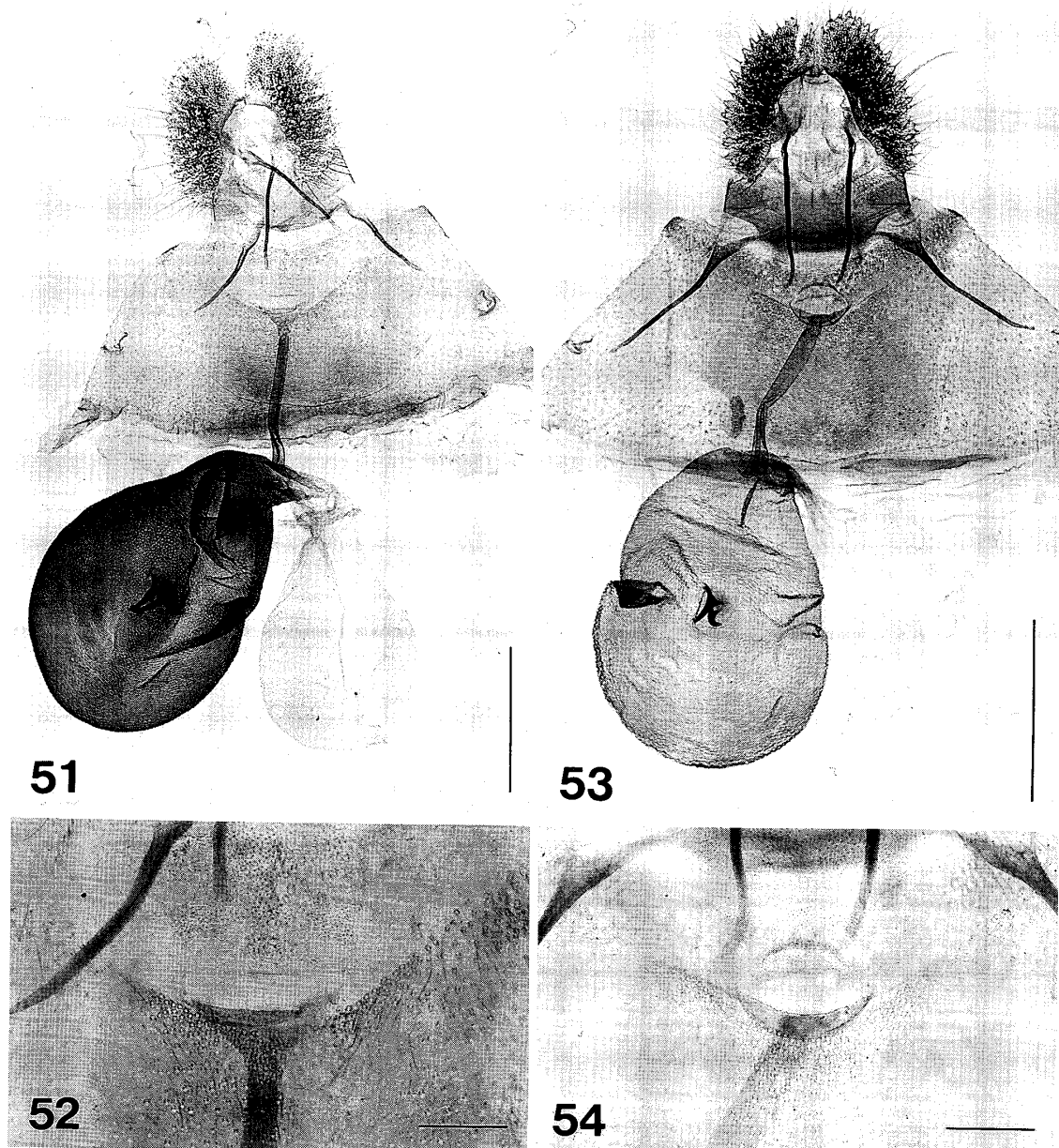
Distribution. Japan.

Remarks: This unnamed species, represented by a single, rather imperfect female, agrees with *A. shoreae* superficially, and also in the genitalia. However, the poor condition of the specimen, the absence of the male, and very widely segregated distribution make me hesitate to identify it as *shoreae*.

11. *Andrioplecta* sp. B (Figs. 29, 36, 39)

Wing expanse: Male 11.5 mm.

♂ (Fig. 29). Head grayish fuscous; face ochreous whitish. Antenna black. Labial palpus ochreous whitish; terminal segment irrorated with grayish. Thorax grayish fuscous, with tips of individual scales paler, and with strong greenish reflections. Abdomen not observed. Forewing ground color fuscous, with greenish reflections; basal 3/5 (scales rather rubbed) irrorated with ochreous whitish, especially conspicuous along outer edge; termen densely irrorated with ochreous whitish between M_1 and CuA_2 ; costa black, marked with some pairs of whitish strigulae, the outermost pair just before apex being pronounced and the rest very minute, and the 2nd pair (from apex of wing) emitting an outwards oblique plumbeous line; in parallel with the line a black straight streak running from outer 1/3 of costa to upper 1/3 of termen; a dark fuscous submedian patch (almost rubbed in left wing) inwardly oblique towards dorsum, but not reaching dorsum; ocelloid patch absent, and this area grayish fuscous, with some longitudinal blackish lines; cilia grayish fuscous, with a whitish apical line and with a dark fuscous basal line, except for a space between CuA_1 and CuP irrorated with ochreous whitish. Hindwing subtriangular, fuscous; hair-tufts of cubital and anal veins grayish fuscous; cilia grayish fuscous, with a



Figs. 51-54. Female genitalia (scales 51 and 53: 0.5 mm; scales 52 and 54: 0.1 mm).

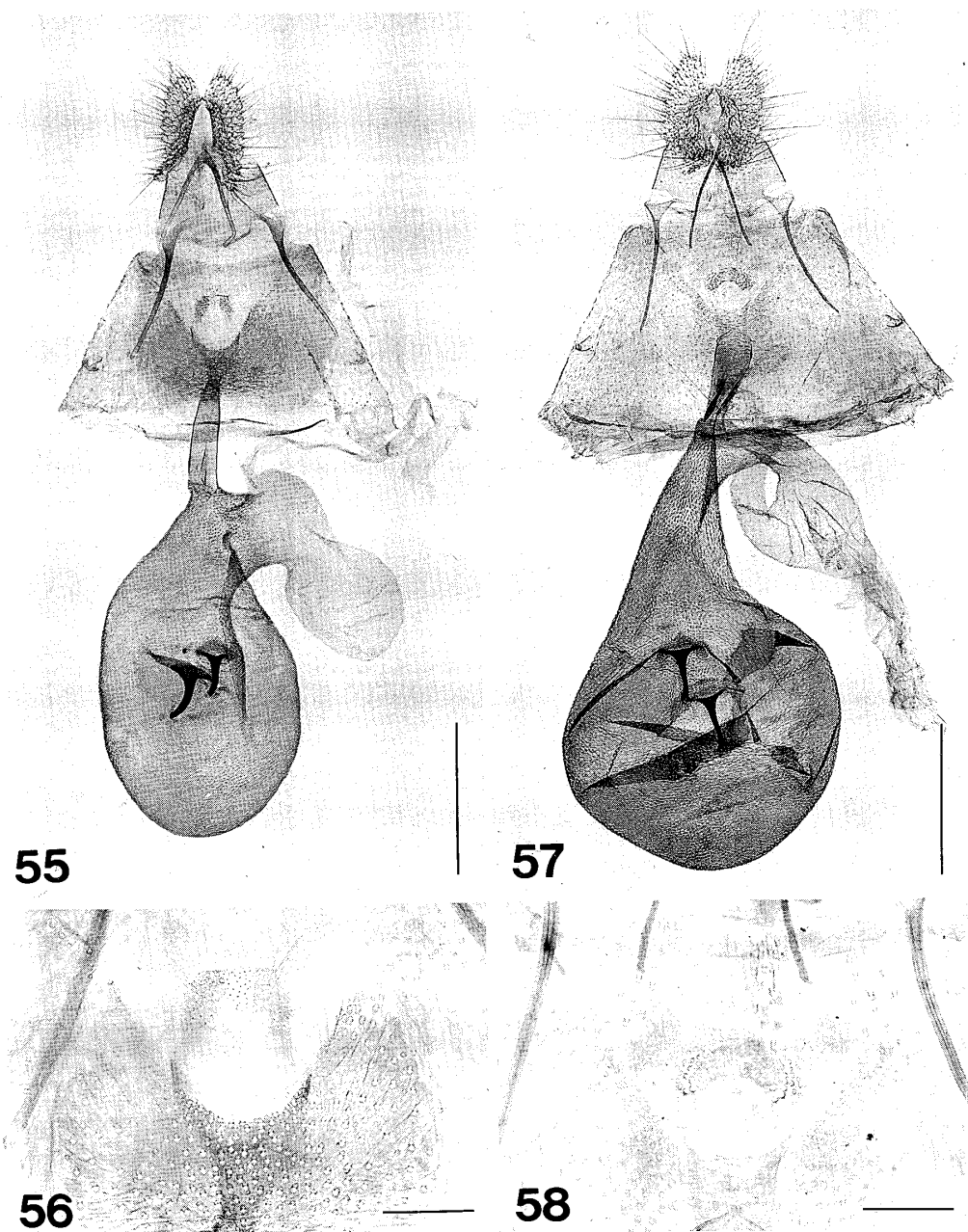
51. *A. rescissa* (Meyrick), genitalia slide BMNH 26907, Java. 52. *Ditto*, detail around ostium bursae. 53. *A. leucodora* (Meyrick), genitalia slide BMNH 26903, Philippines. 54. *Ditto*, detail around ostium bursae.

fuscous basal line.

Male genitalia (Figs. 36, 39): Valva with semioval cucullus. Aedeagus sinuate into a S-shape in lateral view (Fig. 39a); vesica armed with a group of spiniform cornuti.

Scent organs of male: Hindwing with grayish ochreous hair-pencil concealed apically in the dorsal fold. Coremata without scale-tufts. Tergite VIII with a pair of scale-tufts in shallow pocket.

♀. Unknown.

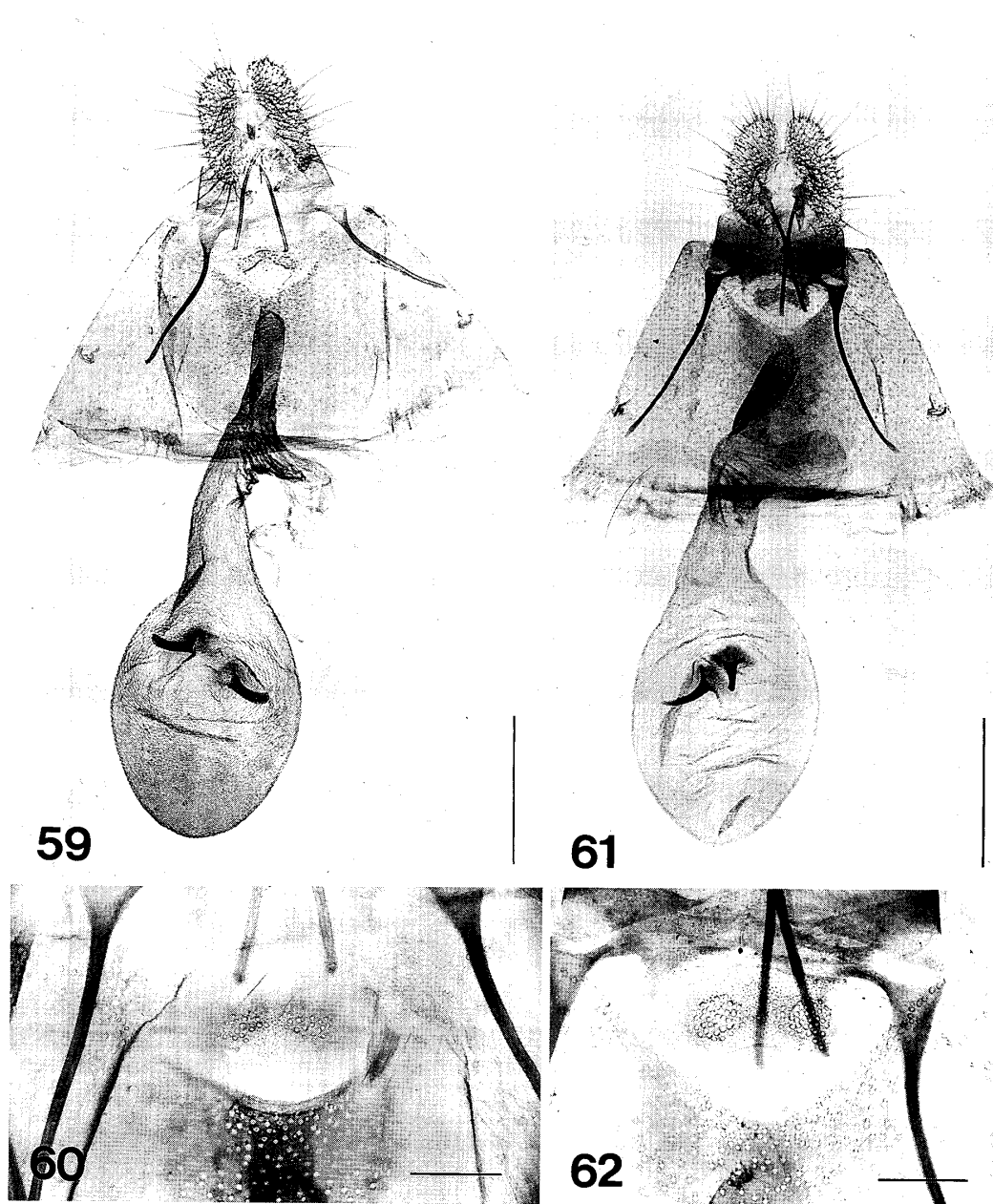


Figs. 55-58. Female genitalia (scales 55 and 57: 0.5 mm; scales 56 and 58: 0.1 mm).
 55. *A. subpulverula* (Obraztsov), genitalia slide FK 981, Malaysia. 56. *Ditto*, detail
 around ostium bursae. 57. *A. dierli* n. sp., genitalia slide FK 941, Nepal, paratype.
 58. *Ditto*, detail around ostium bursae.

Material examined. THAILAND: Chaipayumh Prov.: 1 ♂, Phu Khieo, 800 m, 2-4.
 V. 1986 (Allen) (BMNH).

Distribution. Thailand.

Remarks. This species is undoubtedly an undescribed one, but the present specimen is not in sufficiently good condition to warrant description. Better material may be necessary to separate this new species from its allied species, *A. shoreae*. However, the male genitalia may be different from those of *shoreae* in the absence of the subovate plate on the anterodorsal wall of the aedeagus.



Figs. 59-62. Female genitalia (scales 59 and 61 : 0.5 mm ; scales 60 and 62 : 0.1 mm).

59. *A. shoreae* n. sp., genitalia slide FK 992, Borneo, paratype. 60. *Ditto*, detail around ostium bursae, genitalia slide 991. 61. *A. sp. A*, slide FK 865, Japan. 62. *Ditto*, detail around ostium bursae.

12. *Andrioplecta dierli* n. sp. (Figs. 26, 38, 41, 57, 58)

Laspeyresia (*Laspeyresia*) *pulverula* Meyrick : Diakonoff, 1976 : 39. [Misidentification.]

Diagnosis. *A. dierli* closely resembles *A. pulverula* externally, but may be distinguished from it by the absence of the whitish suffusion along the lower margin of the cell in the hindwing (Fig. 26). The male genitalia are characterized by the cucullus pointed in the ventral angle (Fig. 38) and the aedeagus strongly twisted (Fig. 41). The female genitalia are very similar to those of *shoreae* and *sp. A* (Figs. 59-62), but may be distinct from them

in the sternite VII with a deep emargination at acute angle (Figs. 57, 58).

Wing expanse: Male, female 11–15 mm.

♂ (Fig. 26). Head grayish fuscous; face ochreous whitish. Antenna fuscous. Labial palpus whitish; terminal segment irrorated with grayish. Thorax grayish fuscous, with tips of individual scales paler. Abdomen concolorous with thorax and whitish on underside. Forewing ground color fuscous, with greenish reflections, the tips of scales being ochreous to pale ochreous, forming a dense irroration, especially pronounced on basal 2/3; costa fuscous, marked with 4 pairs of whitish strigulae beyond middle and with some fine ones before middle, the 1st pair (from apex of wing) larger; the 2nd and 4th pairs emitting oblique plumbeous lines which run outwards; a black straight line from 3rd pair of costal strigulae running in parallel to the plumbeous lines and reaching upper 1/3 of termen; an oblique dark fuscous submedian patch on 1/4 of dorsum (it does not touch dorsum and sometimes is very weak); ocelloid patch not formed, but the area grayish fuscous, irrorated with ochreous scales; cilia grayish fuscous with a dark fuscous basal line. Hindwing fuscous, paler basally; hair-tufts of cubital and anal veins grayish ochreous; cilia grayish fuscous, with a fuscous basal line.

Male genitalia (Figs. 38, 41): Valva with cucullus pointed in ventral angle. Aedeagus sinuate, S-shaped in lateral view, and strongly twisted (Fig. 41); vesica armed with a group of spiniform cornuti.

Scent organs of male: Hindwing with grayish ochreous hair-pencil and dorsal fold. Coremata without scale-tufts. Tergite VIII with a pair of scale-tufts in shallow pockets.

♀. Similar to male, but hindwing without dorsal fold and hair-pencil.

Female genitalia (Figs. 57, 58): Apophysis anterioris and apophysis posterioris almost equal in length. Lamella postvaginalis indicated by a kidney-shaped plate (Fig. 58); antrum not defined; ductus bursae rather short, sclerotized in its anterior 3/4; corpus bursae bottle-shaped; signum with a subtriangular base. Sternite VII weakly sclerotized, with posterior edge deeply emarginate at acute angle.

Material examined. Holotype: ♂, NEPAL: Kathmandu Valley, Godavari, 1,600–1,800 m, 4. VIII. 1967 (Dierl & Schacht), genitalia slide FK 940 (ZSM). Paratypes: NEPAL: 1 ♀, Kathmandu-Chauni, 1,400 m, 14. IV. 1967 (Dierl *et al.*); 1 ♂, Kathmandu-Chauni, 19. IV. 1967; 1 ♂, Kathmandu-Chauni, 22. IV. 1967 (Dierl *et al.*) (ZSM). INDIA: Uttar Pradesh: 1 ♂, Dehra Dun Div., 24. VIII. 1922 (D. F. O.), *ex Shorea robusta* (seed) (BMNH).

Distribution. Nepal and northern India.

Host plant. Dipterocarpaceae: *Shorea robusta* (seed).

Remarks. This species is named in honor of Dr. Wolfgang Dierl.

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摘 要

Andrioplecta 属 (鱗翅目: ハマキガ科) の分類学的再検討 (駒井古実)

Andrioplecta 属は 1968 年, Obraztsov により *Laspeyresia pulverula* Meyrick を模式種とする単型属として創設された。その後、その属はほとんど注目されず、わずかに Razowski (1977) が世界のハマキガ科の属のカタログのなかでとりあげただけである。著者によるアジアのヒメハマキガ類の分類学的研究の中で、本属の上記の模式種以外に 5 新種を含む 11 種が追加されることが明らかになった。本論文ではこの属の再記載、種の記載、再記載を行うと共に、属の分類学的位置と単系統性、種間の系統関係についての考察を行った。

Andrioplecta 属はヒメハマキガ亜科(Olethreutinae), Grapholitini 族に所属し、その中で *Strophedra* 属ともっとも近縁である。これら 2 属は a) 雌の後翅の翅刺は 2 本, b) 雌交尾器の ductus bursae は細くて、ほとんど全体が硬化する、という 2 つの新形質を共有している。*Andrioplecta* 属の単系統性は 1) 前翅の後縁 1/3 に黒褐色の斜横紋をもつ, 2) 雄後翅は Rs 脈を欠く, 3) 後翅の R₁ 脈は中室の 1/2-2/3 から出て、Sc 脈と融合する, 4) 雌交尾器の corpus bursae の後腹面部から bulla seminalis がでる、という 4 つの固有新形質により証明される。種間の系統関係は図 15 に示した。

Andrioplecta Obraztsov1. *oxystaura* (Meyrick), n. comb.

以下の 3 種では前翅の黒褐色の斜横紋は明瞭で長い。開張: 9-10 mm. 次種に酷似する。次種と同様雌交尾器 tegumen の側面部に耳状のフラップをもつが、次種とは cucullus の外面から生じる 1-2 本の刺を有すること、aedeagus に 3-4 本の cornuti を有することで区別できる。雌では次種と区別できない。分布: タイ、中国。

2. *suboxystaura* Komai, n. sp.

開張：10-11.5 mm. 分布：タイ.

3. *phuluangensis* Komai, n. sp.

上記 2 種に似るが本種のほうがやや大型（開張：12.5 mm）. 雄は未発見. 分布：タイ.

4. *pulverula* (Meyrick)

開張：10-13.5 mm. 本種は後翅の中室に細長い白色斑を有すること, 前翅の黒褐色の斜横紋は不明瞭で通常後縁に達しないことで, 他種と区別できる. 幼虫はナラ類に寄生するタマバチのゴールを食する. 分布：インド北部, 朝鮮, 日本.

5. *moriutii* Komai, n. sp.

開張：11.5 mm. 前翅基部に小黑点を有すること, 後翅に大白斑をもたないことで, 他種から区別できる. 雌は未発見. 分布：タイ.

6. *rescissa* (Meyrick), n. comb.

開張：14 mm. 次種に似る. 本種と次種の雄後翅には, 大きな白斑がある. 次種とは前翅肛角付近の黒褐色紋と斜横紋とが接近していること, 雄後翅の外縁は曲がりくねることで区別できる. 幼虫は *Cynometra cauliflora* (マメ科) の種子を食する. 分布：ジャワ.

7. *leucodora* (Meyrick), n. comb.

開張：13 mm. 幼虫はカイガラムシの一種を食する. 分布：フィリピン.

8. *subpulverula* (Meyrick), n. comb.

開張：12-14 mm. 前翅のほとんど全面にまばらに黄土白色点が散布されること, 斜横紋が大変不明瞭であることで, 他種から区別できる. 幼虫は *Parashorea* 属, *Dipterocarpus* 属 (フタバガキ科) の種子を食する. 分布：ジャワ, マレーシア.

9. *shoreae* Komai, n. sp.

開張：雄, 12-13 mm, 雌 12.5-14 mm. 次の 4 種と近縁である. 雄交尾器の aedeagus の前背部に略卵形の骨片をもつのが特徴である. 幼虫は *Shorea* 属, *Dipterocarpus* 属 (フタバガキ科) の種子や実生を食する. 分布：タイ, マレーシア, ボルネオ.

10. sp. A

開張：14 mm. 前種と区別できないが, 標本の状態の悪い雌 1 頭に基づく上に, 前種の分布域とは遠く隔たっているので同一種にしなかった. 分布：日本.

11. sp. B

開張：11.5 mm. 明らかに新種であるが, 標本の状態がよくないので, 命名しなかった. 雄交尾器は *A. shoreae* に似るが, aedeagus の前背部には略卵形の骨片を欠いている. 雌は未発見. 分布：タイ.

12. *dierli* Komai, n. sp.

外見は *A. pulverula* に似るが, 後翅中室の白色斑を欠いている. 幼虫は *Shorea* 属 (フタバガキ科) の種子を食する. 分布：ネパール, インド北部.

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